Economic Development

The Economy of Quebec and Its Regions

Analysis of Trends

2003

Canada Economic Development for Quebec Regions

Développement économique Canada pour les régions du Québec

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The Economy of Quebec and Its Regions

Analysis of Trends

2003 Edition

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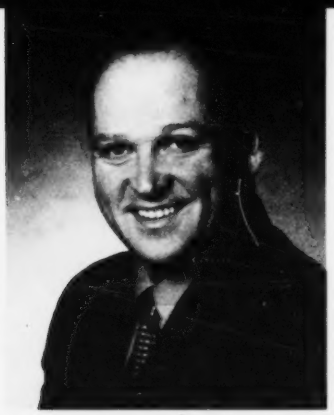

Secretary of State responsible for Canada Economic Development for the Regions of Quebec

Message from the Honourable Claude Drouin

I am very pleased to present *The Economy of Quebec and Its Regions: Analysis of Trends 2003*. The previous edition, which appeared in 2000, emphasized that market globalization and the accompanying economic changes presented major challenges to Quebec's enterprises and regions, while affording new development opportunities. This challenge is still very real, especially for the remote regions that depend on the resources sector.

Globalization has led to more open markets and freer flow of capital and investment. At the same time, globalization accentuates the interdependence of states, which are less and less able to operate in isolation. In response, governments have to adapt their intervention so as to give priority to establishing the necessary conditions for the regions to meet the new, emerging challenges.

Canada Economic Development has produced this publication to help business executives and economic stakeholders grasp more clearly the recent changes that have occurred in the Quebec economy and to provide an overview of the trends and issues taking shape on the horizon; this document is intended to be an accurate profile of developments in the Quebec economy and of the challenges ahead. It profiles the comparative performance of Quebec and its regions, including statistical data on the main socio-economic indicators, such as population, economic activity, employment and unemployment, investment and income. When placed in context, these statistical data help the reader understand Quebec's economic situation and outlook more clearly.

The 2003 edition also takes its inspiration from the work conducted over the past two years by Canada Economic Development's Observatory. Thus, special attention is paid to the regions far from the markets and experiencing difficult socio-economic problems.

I trust this publication will provide readers with the elements needed to enhance their understanding of the economic situation in Quebec.

Introduction

Globalization is not a new phenomenon. What is different, though, is the pace at which the world economic context is evolving. Quebec, like all industrialized economies, has to contend with a profound transformation in the factors influencing economic development. Open markets and heightened competition reduce the manoeuvrability enjoyed by regions and enterprises, while at the same time presenting new business opportunities. In the future, economic growth and the enhancement of collective wealth will depend on an increasingly knowledge-based economy. This issue presents differently depending on the region, posing a fine challenge in which the Agency wishes to be involved with the assistance of its partners.

Summary

For the past few years, Quebec has posted sound economic performance. The labour market is expanding, external trade is growing steadily and diversifying, and the number of enterprises actively involved in research and development (R&D) is increasing. Despite these good results, the Quebec economy continues to lag substantially behind the economies of Canada and Ontario. Also, the future of certain remote regions[1] experiencing substantial structural difficulties and struggling to move into the mainstream of the new economy remains a source of concern.

Financial situation

Prudent financial management, combined with the sound economic performance of the past four fiscal years, has enabled the Quebec government to acquire some degree of financial manoeuvrability, albeit limited by the burden of the provincial debt. In the coming years, most available funding will go to meeting the growing needs of the health, education and social services sectors. The results of this are that Quebec's financial situation remains fragile.

Demographics

Quebec's demographic outlook is cause for concern. Quebec's fertility rate of 1.44 children per woman, among the lowest of any Organisation for Economic Co-operation and Development (OECD) country along with Japan, is insufficient to ensure growth in the province's population in the medium and long term. According to the *Institut de la statistique du Québec* (ISQ), Quebec's population growth could be negative from 2025 onward. Even a large increase in immigration levels would not reverse the trend. Demographic growth is uneven across the province, being concentrated in the Montreal metropolitan area. In most remote regions, the population is already shrinking. Also visible over the past few years has been sustained intraprovincial migration that accentuates the depopulation and devitalization of the remote regions to the benefit of the more urban regions. As for the Aboriginal population, its birth rate is substantially above the provincial average, and this phenomenon could lead to changes in the demographic weight of certain regions such as Côte-Nord.

Reference marks refer the reader to endnotes on pages 75 to 77.

Economic indicators

Quebec's gross domestic product (GDP) growth for 1981-2001 lagged persistently behind the United States, Canada and Ontario, so Quebec's weight within the Canadian economy has constantly declined. The Quebec economy is very open. Since the early 1990s, the province's external trade has grown considerably. The U.S. is Quebec's largest trade partner by far, since the province ships 85% of its exports to, and close to half its imports come from, that country. The remote regions which export a large proportion of their output of raw materials to the U.S. market remain at the mercy of the exchange rate, as well as of American trade policy, as may be seen from the lumber dispute. Although, overall, Quebec small- and medium-sized enterprises (SME) export little, a growing number of them are moving beyond local and regional markets. A substantial portion of jobs in Quebec SMEs are estimated to depend on the export market. Between 1997 and 2001, Quebec enjoyed an increase in labour productivity that exceeded the Canadian and Ontario averages. Despite that, Quebec's economy continues to lag far behind in terms of productivity. Quebecers' disposable income has not risen since the early 1990s, and stands significantly below the national average, and even farther below Ontario.

Remote regions

Globalization and the new economy present special challenges for the remote regions which, in some cases, require substantial restructuring of their economic and social fabric. The crisis experienced by the Gaspé Peninsula for the past few years speaks volumes about more fundamental, broader economic transitions associated with sustainability of resources and the necessary shift to a more diversified economy. Abitibi-Témiscamingue and Côte-Nord, heavily dependent on the mining industry, and Saguenay—Lac-Saint-Jean, which relies on the aluminum and forest sectors, could eventually be faced with the same type of adjustment and restructuring challenges.

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Quebec's **FINANCIAL SITUATION**

Chapter 1

Quebec's financial situation

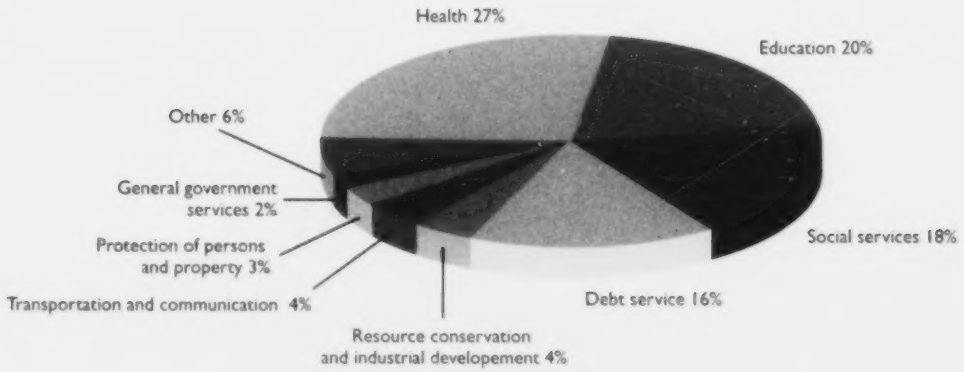
Financial flexibility regained... but still fragile.

Governments have always sought, through their investments or their spending, or through fiscal measures or special programs, to influence the economic decisions made by citizens, investors and businesses. According to the experts however, the impact of such government intervention is relatively modest in the face of global market forces. Also, over the past decade most governments in industrialized nations have had to significantly decrease their spending levels in order to place their public finances back on a sound footing, reducing accordingly their ability to intervene in the economy. The Quebec government was not spared from this trend, and had to agree to cut back substantially on its overall spending. Reversing a trend that had lasted almost 25 years, the Quebec government has posted budget surpluses over the past four fiscal years, starting in 1998-1999. Forecasts for fiscal 2002-2003 also point to a balanced budget. This fiscal consolidation has enabled the Quebec government to re-establish some degree of financial manoeuvrability.

However, this flexibility remains fragile. For fiscal year 2000-2001, the health care, social services and education sectors, totalling $26 billion, accounted for 64% of program spending, or 61% of the Quebec government's autonomous revenues.[1]

1- Breakdown of Quebec government spending by budget item

2000-2001



Source: Statistics Canada.

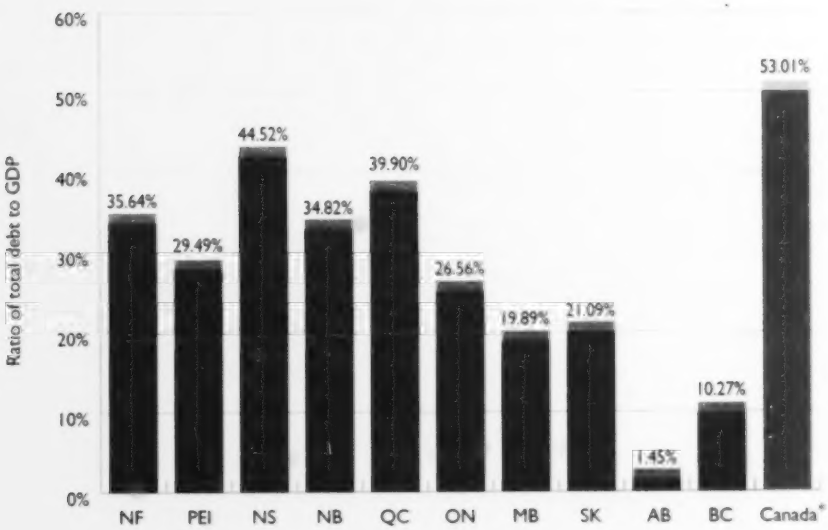
The health care and education sectors are exerting upward pressure on public finances.

In view of the aging of the population, advances in pharmacology and the ongoing technological improvement of medical treatments, health care costs should continue to rise faster than economic growth in the coming years. The same applies to spending on education. Despite slow demographic growth, the pressure exerted by the knowledge economy and globalization will have to be translated into increased spending on education in order to meet Quebec enterprises' need for skilled labour and ensure their future competitiveness.

Reference marks refer the reader to endnotes on pages 75 to 77.

The weight of the provincial debt also adds to the government's financial constraints. Quebec's total debt stood at $105 billion in 2001-2002, making Quebec one of the most indebted provinces. Interest costs on the debt were $7 billion in 2000-2001, or 16% of the Quebec government's autonomous revenue. Despite efforts by the provincial government to bring down public spending, the debt has constantly grown since 1998-1999, the year in which the zero deficit strategy was introduced.

2- Debt level of Canada's provinces and the Canadian Government



* Federal government debt in relation to National Gross Domestic Product (GDP).

Sources: Statistics Canada, Finance Canada, ministère des Finances du Quebec.

In absolute terms, Ontario's debt is greater than Quebec's. However, when one divides the debt by the number of inhabitants in the province, one realizes that Quebecers' level of indebtedness is, on a per capita basis, the highest of all Canadian provinces, at more than $12,000 per inhabitant. Looked at another way: there are substantially fewer Quebecers than Ontarians to share the burden of the provincial debt. As we shall see in the next chapter, demographic questions thus take on considerable importance in the economic discourse.

3- Debt per inhabitant

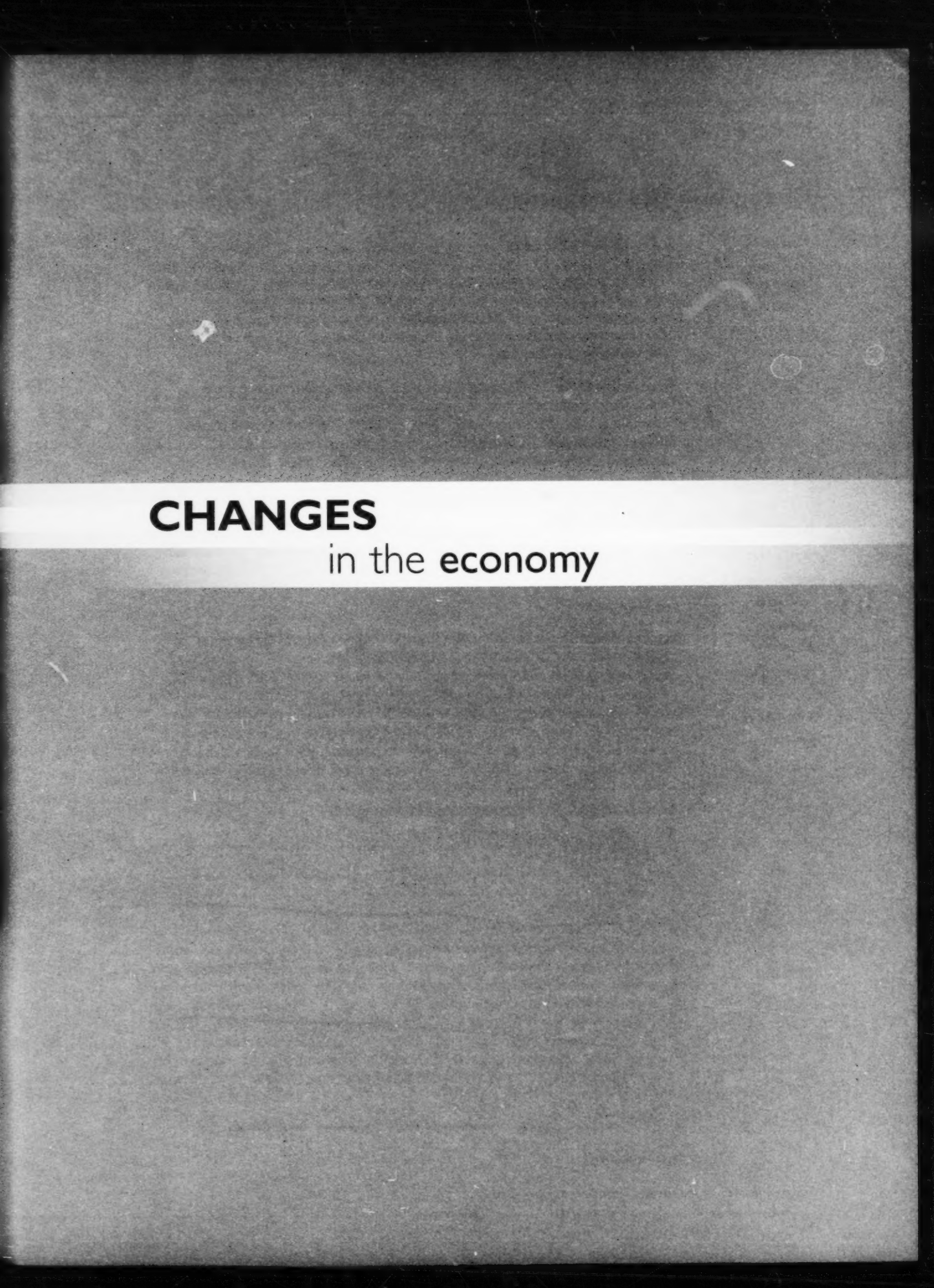
Canada and provinces
2001

* Federal government debt in relation to National Gross Domestic Product (GDP).

Sources: Statistics Canada, Finance Canada, ministère des Finances du Québec.

CONCLUSION

The Quebec government's financial situation remains fragile. The debt burden, as well as limiting the government's manoeuvrability, presents the dilemma of intergenerational equity. In her 2000-2001 budget, the provincial Deputy Prime Minister and Minister *des Finances, de l'Économie et de la Recherche du Québec*, Pauline Marois acknowledged the seriousness of the situation by allocating $500 million to pay down the debt. This first effort is encouraging, but much more forceful steps will have to be taken if a noticeable difference is to be made and an excessive burden is not to be left to future generations.


CHANGES
in the economy

Chapter 2

Changes in the economy

2.1 Demographics

Demographics, a major challenge for industrialized countries.

According to David Foot, demography, which is the statistical study of human populations, is the most powerful tool we have for understanding the past and forecasting the future.[1] A sound understanding of demographic change[2] enables us to understand changing government policy more clearly, as well as the challenges governments have to deal with.

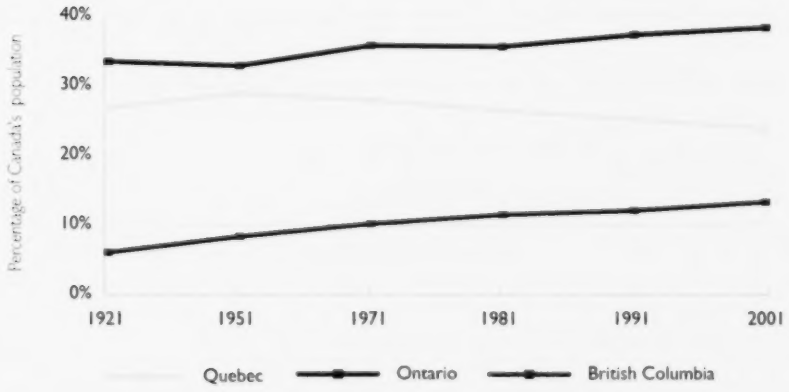
Since the late 1980s, a widespread demographic downturn has been seen in the industrialized countries, with some significant consequences. Low or even negative population growth affects the dynamism of the economy by pushing down demand for goods and services. Slow demographic growth also has an impact on the investment climate and the creation of enterprises, reducing job opportunities accordingly. For some regions, declining demographic numbers could potentially lead to a situation where the delivery of certain public services is cast into doubt.

Quebec's demographic weight in the Canadian federation is constantly decreasing whereas Ontario's and British Columbia's are increasing.

Quebec's demographic situation is cause for concern. The fertility rate, the main factor in demographic growth, stands at 1.44 children per woman, well below the threshold of 2.1 that is needed to replace the existing population. With a very low fertility rate, Quebec could have increasing difficulty maintaining a sustained economic growth rate in the future.

In terms of demographic weight within Canada, Quebec's share of the Canadian population fell from 28.9% in 1951 to 23.8% in 2001, and Statistics Canada and the *Institut de la statistique du Québec* expect it to fall below 20% by 2025. Conversely, the demographic weight of Ontario and British Columbia grew constantly over the same period, with Ontario's climbing from 32.8% to 38.2%. Within 50 years, the difference between the demographic weights of Quebec and Ontario rose from 3.9 percentage points to 14.4 points in Ontario's favour. British Columbia's population, which in 1951 stood at one quarter of Quebec's, is now more than half of Quebec's population.

4- Changes in demographic weight
Quebec, Ontario, British Columbia
1921-2001



Source: Statistics Canada.

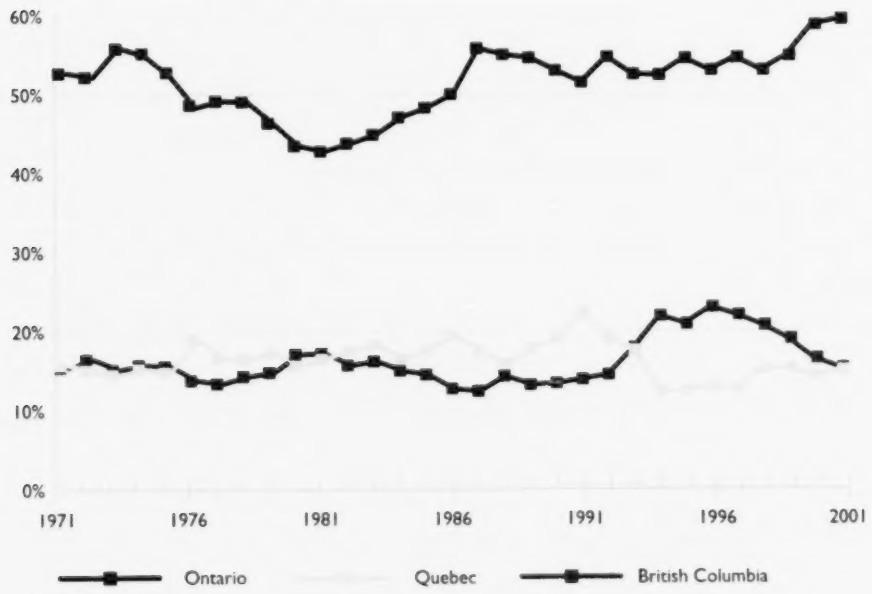
Reference marks refer the reader to endnotes on pages 75 to 77.

Immigrants settle mainly in Ontario.

Two factors behind the sustained demographic growth in Ontario and British Columbia are immigration and interprovincial migration. On the immigration front, Ontario has been immigrants' destination of choice over the past 30 years: in 2001, Ontario received close to 60% of Canadian immigrants, while Quebec and British Columbia each received approximately only 15%.

5- Provincial share of immigration

Ontario, Quebec, British Columbia
1971-2001

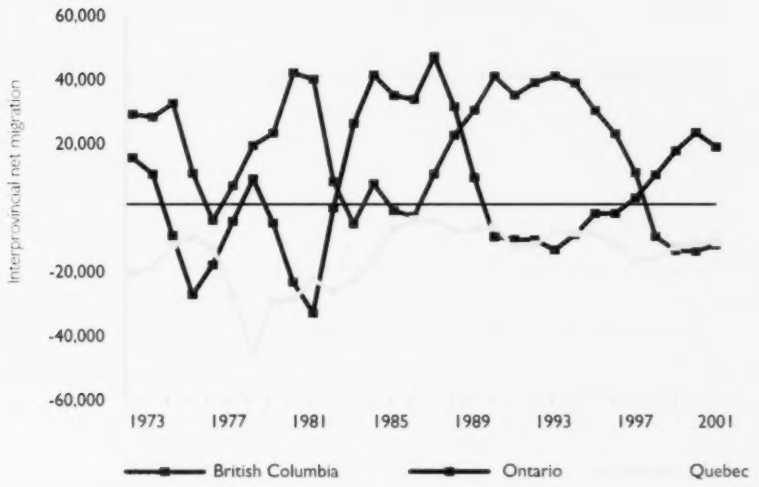


Source: Statistics Canada.

In terms of interprovincial migration, the situation is equally a matter of concern. Since 1972, Quebec has posted a net loss of residents to other provinces. Over the past 30 years, interprovincial migration has especially benefited Ontario and British Columbia. Data from the *2001 Census* confirm the trend. Thus, between 1996 and 2001 approximately 119,700 people left Quebec, with most of them (80,500) settling in Ontario. Over the same period, Quebec received 62,400 new people, for a negative migration balance of 57,300. There is a bright spot despite this decline, once this migration shortfall has been placed in perspective. While quite worrying, it is nevertheless a far cry from the decline of 141,700 seen between 1976 and 1981.

6- Interprovincial net migration

Quebec, Ontario, British Columbia
1972-2001



Source: Statistics Canada.

The population of Quebec's urban regions is constantly growing, while the population of the remote regions is falling.

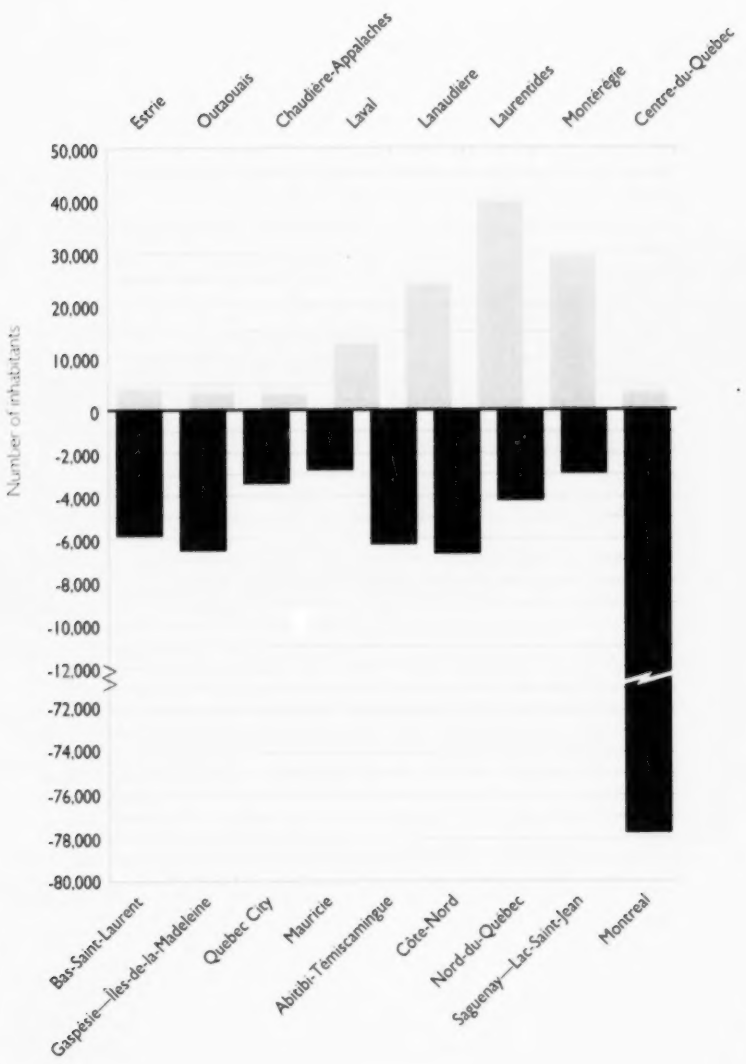
Migratory movements among Quebec's regions, known as intraprovincial migration, vary in intensity in line with the regions' economies, job opportunities and individuals' career choices. It is relatively easier to move within a province than to leave one's home environment to settle in another province or country. Also according to the *2001 Census*, unilingual francophones made up 56.1% of Quebec's population in 2001. For them, the language barrier is a further, major disincentive to migrating outside Quebec. On the other hand, depending on the economic conditions, people are more willing to move to other regions, within Quebec, where the employment outlook is brighter.

Between 1993 and 2000, nine Quebec regions recorded negative intraprovincial migration; that is, more residents left those regions to settle elsewhere in the province. These nine regions were: Gaspésie—Îles-de-la-Madeleine, Bas-Saint-Laurent, Saguenay—Lac-Saint-Jean, Mauricie, Abitibi-Témiscamingue, Côte-Nord, Nord-du-Québec (most "remote" regions) and Île-de-Montréal and Quebec City.

By contrast, the Chaudière-Appalaches, Laval—Laurentides—Lanaudière, Estrie, Outaouais, Montérégie and Centre-du-Québec regions benefited from migration from other regions. It is estimated that part of the migration to Laval—Laurentides—Lanaudière and the Montérégie is attributable to people leaving the Island of Montreal for the suburbs. However, the number of people who left the Island between 1993 and 2000 is lower than the number of people who settled in those four regions taken as a whole. Those regions therefore also gained from migration from regions other than Île-de-Montréal.

7- Intraprovincial migration

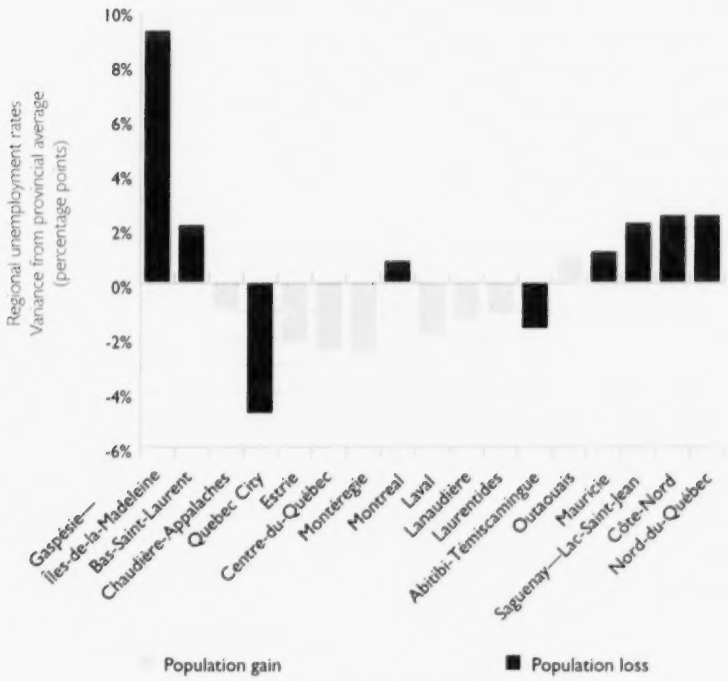
1993-2000



Source: Statistics Canada

The population loss from the remote regions is partly explained by those regions' high jobless rates. Thus, a direct correlation is seen between migratory movements and high unemployment. Between 1993 and 2000, the Quebec economy posted a 12% annual average unemployment rate. Of the eight Quebec administrative regions that recorded jobless rates above the 12% provincial average, seven also posted negative migration levels.

8- Variance of regional unemployment rates in relation to intraprovincial net migration



Source: Canada Economic Development compilation based on data from Statistics Canada.

The Quebec population is aging rapidly...

Immigration, fertility rate and interprovincial and intraprovincial migrations determine the regions' demographic weight in the long term. Analysis of population data since 1971 leads to the conclusion that the weight of the urban regions, especially those close to Montreal, is increasing to the detriment of the remote regions. This trend is not unique to Quebec, however, since all Canadian provinces have seen increased urbanization since the early 1950s.

The aging of the population raises other concerns. The proportion of the Quebec population aged 45 and over rose from 25% in 1971 to 38% in 2001. According to projections from the *Institut de la statistique du Québec*, this group will make up half the population in 2026. The situation is even more drastic for the less urbanized regions. Young people are increasingly leaving those regions for the cities, further accentuating the aging of the population in those regions.

... with significant consequences for public policy.

Individual behaviour alters with age and transforms consumer, savings and investment patterns. As the population's needs change, aging will also affect the future composition and thrust of government programs and services. Many of the social programs in place were designed on the assumption that an abundant, young labour pool needed to fund these programs would be available, and this will manifestly not be the case.

9- Changes in demographic weight of Quebec regions
1971-2001

	% of Quebec total 1971	1981	1991	2001*	Change in weight (1971-2001) in %
Lanaudière (14)	2.9	4	4.9	5.4	86.2
Laurentides (15)	4	4.8	5.5	6.4	60.0
Montérégie (16)	13.8	16.5	17.5	17.6	27.5
Laval (13)	3.8	4.2	4.6	4.7	23.7
Outaouais (07)	3.6	3.8	4.1	4.4	22.2
Chaudière-Appalaches (12)	5.1	5.4	5.3	5.3	3.9
Quebec City (03)	8.8	9	8.9	8.8	0.0
Nord-du-Québec (10)	0.5	0.6	0.5	0.5	0.0
Centre-du-Québec (17)	3	3.1	3	3.0	0.0
Estrie (05)	4	4	3.9	3.9	-2.5
Saguenay—Lac-Saint-Jean (02)	4.4	4.4	4.1	3.8	-13.6
Mauricie (04)	4.1	3.9	3.7	3.5	-14.6
Abitibi-Témiscamingue (08)	2.4	2.3	2.2	2.0	-16.7
Côte-Nord (09)	1.7	1.8	1.5	1.4	-17.6
Bas-Saint-Laurent (01)	3.5	3.3	3	2.8	-20.0
Montreal (06)	32.5	27.3	25.7	25.0	-23.1
Gaspésie—Îles-de-la-Madeleine (11)	1.9	1.8	1.5	1.3	-31.6

* Data for 2001 are preliminary data from the *2001 census*.
Sources: Institut de la statistique du Québec, *Statistics Canada*.

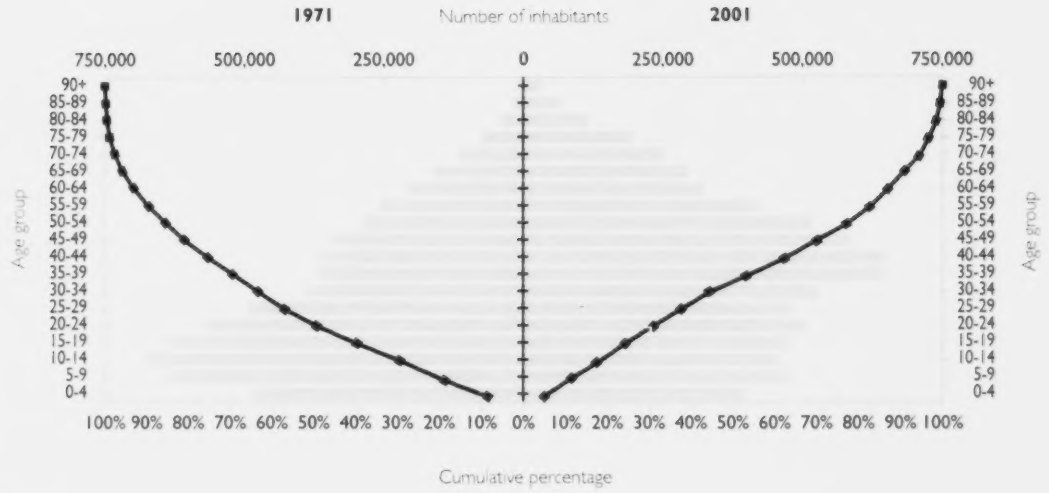
It is hard to identify exactly the long-term economic and fiscal impact of an aging population on the Quebec economy; a multitude of factors and social behaviours are evolving concurrently. Clearly though, as demographic growth slows and the population ages, we will no longer be able to afford to not give serious consideration to the content and funding of public programs and services in the future. An interesting challenge therefore awaits Quebec in terms of the choice and thrust of its social policy.

*"The challenge associated with aging... will require greater flexibility in the face of spending priorities, encouraging human capital acquisition in younger generations and removing barriers to labour force participation among individuals nearing retirement. They also require defusing the expected regional imbalances... between aging-related needs and fiscal resources."**

* Marcel Mérette, *The Bright Side: A Positive View on the Economics of Aging*, Institute for Research on Public Policy, Vol. 8, No. 1, March 2002, p. 28.

10- Age pyramid

Quebec



Source: Statistics Canada.

2.2 Economic growth

For 1981-2001 as a whole, Quebec's growth lagged behind Canada and Ontario...

Gross domestic product (GDP) is an indicator of the creation of wealth in an economy. This statistic is the most commonly used to gauge a region's economic activity and allows for comparison with other countries or among provinces or states within the same country. GDP is measured by totalling, for a given year, spending by consumers and government, private and public investment and the current trade balance (that is, exports of goods and services less imports). Thus, the GDP level provides an idea of the relative size of an economy, while the GDP growth rate measures the strength of an economy.

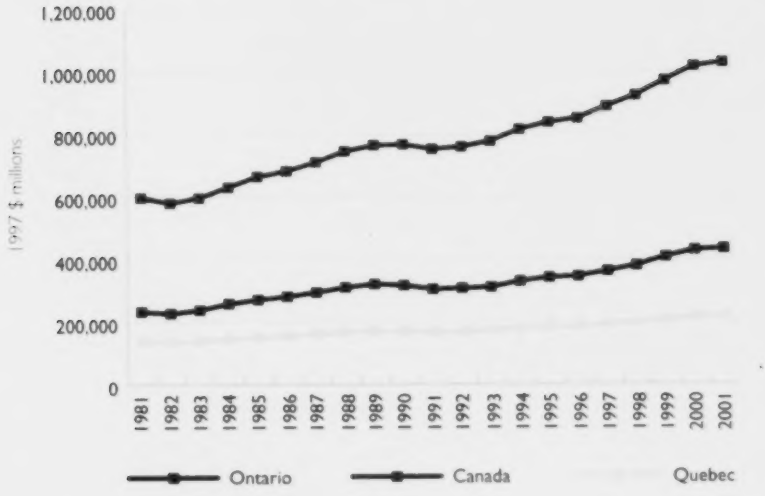
Quebec's GDP rose from $140 billion in 1981 to $217 billion in 2001 (in constant 1997 dollars),[3] a 55% increase. Over the same period, Canada's GDP advanced by 72% and Ontario's grew by 85%, matching U.S. GDP growth.[4]

... leading to a decline in Quebec's economic weight within the Canadian federation.

This poor performance reduces Quebec's economic weight in the Canadian economy. In 20 years, Quebec's contribution to Canada's GDP fell from 24% to 21%. Over the same period, Ontario saw its economic weight rise from 39% to 42%, which in fact is four percentage points more than its demographic weight of 38% in 2001. This performance confirms Ontario's role as the engine of Canada's economy.

11- GDP growth

Canada, Quebec, Ontario
1981-2001

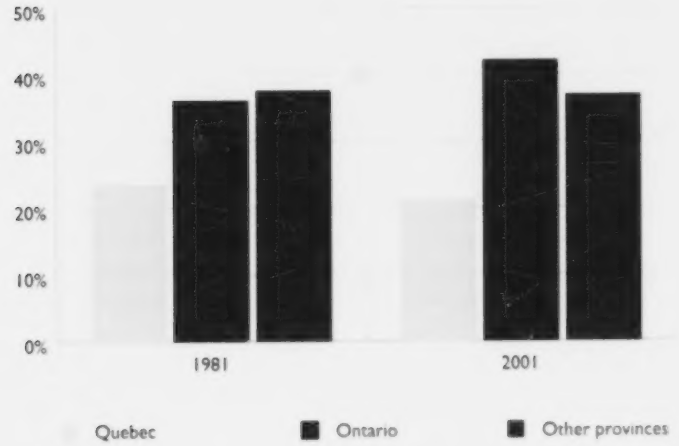


Source: Statistics Canada.

The consequences of Quebec's under-performance in terms of economic growth are serious. Thus, if Quebec had been able to maintain the relative position it held in 1981 in the Canadian economy, the provincial GDP would have been $24 billion, or 11%, higher than the actual 2001 value, almost the equivalent of the $26 billion in budgetary expenditures by the Quebec government for health and social services and education in 1999-2000.

12- Contribution to national GDP

Quebec, Ontario, other provinces
1981-2001



Source: Statistics Canada.

When population size is taken into account by looking at per capita GDP, Quebec's performance is close to Ontario's.

When GDP is considered in relation to population size, the picture is rather different, with the growth gap between Ontario and Quebec almost completely disappearing. So, between 1981 and 2001, GDP per capita in Quebec grew by 36.8%, against 37.5% for Ontario. Ontario's lead of 0.7 points per person is therefore much more modest than the 30-point spread between the two provinces' GDPs. The analysis must, however, take into account the fact that during that period Ontario's population growth was much stronger than Quebec's, with the addition of more than three million people for Ontario compared with a mere 862,000 for Quebec. A demographic growth rate equivalent to Ontario's would have added a further 900,000 people to Quebec's population.

A closer look at the data reveals that in 11 of the 20 years between 1981 and 2001, annual GDP growth per person in Quebec surpassed Ontario. This analysis also leads to the conclusion that the Quebec economy does not appear to be able to heat up as quickly as Ontario's to take advantage of more prosperous times. From 1981 to 2001, the annual GDP growth rate per person in Ontario topped 6% on two occasions, while Quebec achieved a high of 4.8% only once.

Before being satisfied with the fact that Quebec's GDP growth rate per person was close to Ontario's, one has to bear in mind that both Quebec and Ontario lagged far behind the 52.8% GDP growth rate per person recorded by the United States from 1981 to 2001.[5]

13- Annual GDP growth per inhabitant

Quebec, Ontario
1981-2001

Source: Statistics Canada

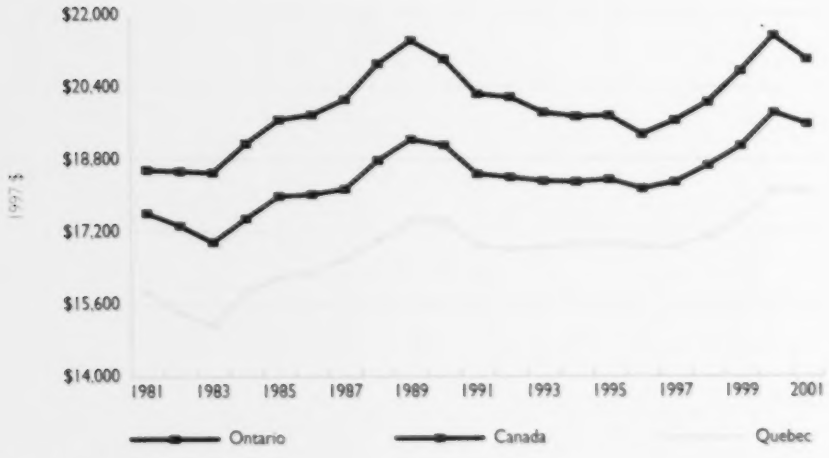
2.3 Disposable income

Disposable income in Quebec is lower than in Ontario and Canada.

A simple way of understanding the link between the economy and individuals is disposable income, which is what we are left with to buy goods and services or to save once all the "tax bites" have been taken. It is calculated by subtracting from gross income the income tax and the various amounts withheld at source, such as pension plan and Employment Insurance contributions. The combination of high jobless rates, reduced economic activity, revenue taxes and other taxes affects disposable income. Between 1981 and 2001, disposable personal income in Quebec (in real 1997 dollars) rose by 13.9% from $15,862 to $18,066.

14- Growth in disposable income

Quebec, Ontario, Canada
1981-2001



Source: Statistics Canada

Notably, though, whereas from 1981 to 1991, GDP per person (or economic growth) and disposable income grew at the same pace, things were quite different from 1991 to 2001. During that decade, disposable income grew more slowly than the economy did, leading to the conclusion that citizens benefited less from growth during that period. How can this be explained? Essentially by increased taxation and indirect taxes to bring down constantly rising operating deficits. So, between 1993 and 1999, government revenues from direct personal income tax rose in Quebec by 27.8%, whereas government transfers to individuals increased by a mere 3.8% over the same period. Added to this was a significant increase in consumption taxes with the introduction of the Goods and Services Tax (GST) and the provincial sales tax (QST). Income tax reductions recently granted by the Government of Canada, and then the Quebec government, should give taxpayers a little breathing space over the next few years.

The situation in the regions is even more lacklustre.

While for the period as a whole, Quebecers' disposable income remained lower than Canadians' and Ontarians', some improvement is visible. Thus, the GDP growth gap between Quebec and Ontario shrank between 1991 and 2001 compared with the previous decade. However, more important still, growth in disposable income between 1991 and 2001 was stronger in Quebec, catching up slightly with Canada and Ontario.

The picture for Quebec as a whole masks the much more difficult reality experienced by the regions. In Saguenay—Lac-Saint-Jean, for instance, the level of disposable income in 2000 was, in fact, lower than in 1995 in real terms (after removing the effect of inflation). The Nord-du-Québec region posted the highest percentage increase in personal disposable income between 1995 and 2000, but the situation of that region's inhabitants barely improved, going from the lowest level of disposable income in 1995 to the second lowest in 2000. The highest disposable income was to be found in Montreal, and that statement held true for 2000.

15- Disposable income by Quebec region

1995 and 2000

Source: Institut de la statistique du Québec

Once again, a link may be established with migration patterns among the regions. Thus, of the eight regions which had positive intraprovincial migration from 1993 to 2000 (see Section 2.1, Table 7), seven registered the highest levels of disposable income. However, while comparisons of disposable income among the regions provide a good indication of a region's economic health, they do not say everything, and conclusions should be drawn with caution. To compare more accurately, other factors have to be taken into account, such as the difference in the cost of living and government transfers to citizens which partly make up for some individuals' low incomes.

The scale of government transfers in citizens' personal income[9] thus becomes an indicator of a region's economic strength or weakness. As we later show (Section 4 on differing regional issues), the dependency of Quebec's outlying regions on transfer payments is rising, a fact that should come as no surprise in view of the extremely difficult economic issues these regions have to contend with.

2.4 External trade

An economy which experiences sustained demographic growth, thus fuelling strong domestic demand for goods and services of all kinds, can grow and prosper without a strong presence on external markets. Without this demographic growth, an economy requires external trade to remain strong. This is all the more true for an economy where anaemic population growth leads to weaker domestic demand, as in Quebec. A sound performance on external markets then becomes essential for maintaining growth and economic prosperity.

With the opening-up of markets and liberalization of trade rules, the pursuit of external markets becomes a fundamental component of growth and economic prosperity.

Since the mid-1980s, multilateral and bilateral negotiations on trade liberalization have transformed the economic environment and led to a substantial increase in trade flows as well as increasingly advanced economic integration internationally. At the same time, a trend toward regionalization is visible with countries grouping together to create common trade areas with clear rules facilitating trade expansion. Currently, three major areas stand out, namely, Asia, the European Union and the proposed Free Trade Area of the Americas (FTAA) dominated by the United States, to which Canada will belong.

Between 1992 and 2000, Canadian exports increased by 123% in constant dollars. But, when 2001 is included, the growth rate drops to 112%. On the export front, 2000 was exceptional, while 2001 posted a decline, with Canadian exports to the U.S. falling by 5%, as a result of the slowdown in the American economy.

Sustained growth in Canadian and Quebec exports over the past decade.

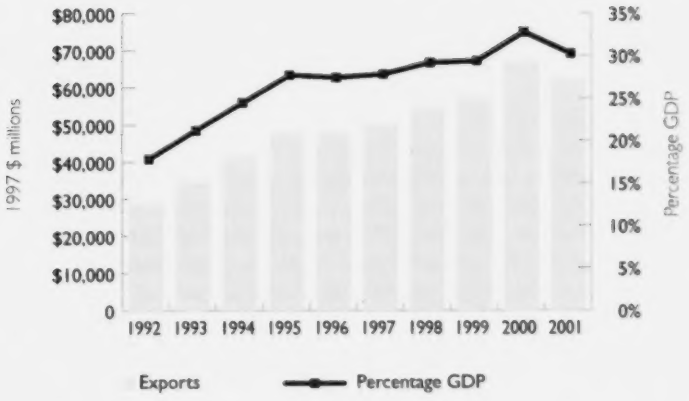
Quebec's performance was similar to Canada's, with Quebec's volume of international exports increasing by 135% during 1992-2000. Once 2001 is included, the growth rate falls to 119%. It is worth mentioning that growth in Quebec's international exports of goods outpaced Canada and Ontario over the same period. Since 1992, international exports of goods have been the engine of Quebec's economic growth. In 2000, they accounted for 32.7% of Quebec's GDP, up from 17.8% in 1992.

The U.S. market is the main outlet for Canadian exports. Between 1992 and 2001, the proportion of Canadian exports going to the U.S. rose from 77% in 1992 to 87% in 2001. Over the same period, the predominance of the U.S. market for Ontario's exports went from 88% to 93%. As for Quebec, the levels attained are similar to Canada's, at 75.5% in 1992 and 85% in 2001. This excellent export performance boosted Quebec's surplus in goods and services traded with the United States from seven billion dollars in 1991 to more than $40 billion in 2000.

United States: the main economic partner of Canada and Quebec.

16- Quebec exports

1992-2001



Sources: Statistics Canada, Industry Canada.

But this advanced integration is not a threat, in view of the vast potential of the U.S. market.

Canada exports mainly to the United States, in return it is also the main outlet for U.S. exports. In addition, investment and capital flow between the two economies are substantial and constant. This prompts some people to say that for all intents and purposes the U.S.-Canada market is nothing more than a large, integrated single market.

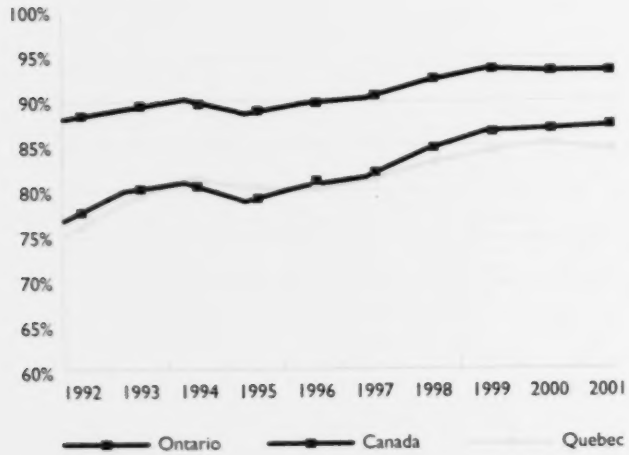
Canada's growing dependence on the U.S. market is of concern to a number of experts, who fear that Canada may lose its economic independence, finding itself at the mercy of the economic situation in the United States. In view of the dominance of the U.S. in the Americas' market, Canada will not, in any event, be able to avoid being influenced by trends in the U.S. economy. However, despite the conventional wisdom, the United States does not form a large single market, but rather a collection of four large regional markets (Midwest, Northeast, South and West) that operate fairly independently of one another, with distinct economic cycles and different requirements. To date, Quebec exports have focussed primarily on the more mature Northeast and Midwest markets. According to the experts, the best opportunities for growth are now afforded by the U.S. Southern and Western markets. Quebec businesses stand to gain by further developing these markets where they have very little presence. According to the Department of Foreign Affairs and International Trade (DFAIT), business opportunities appear especially attractive for business service firms (electronic data processing, software and applications, computer hardware) and for manufacturers of pharmaceutical products and transportation equipment.

Major switch in composition of exports toward higher value-added products.

The composition of Quebec exports has been changing over the past few years. The importance of natural resources is constantly declining, giving way increasingly to high value-added finished products. Minerals and wood products dominated the export market in 1992, together accounting for 23% of Quebec's international exports. In 2001, their share fell to only 17% of the total, while transportation equipment led the pack as the primary export product.

17- Percentage of exports destined to the U.S. market

Canada, Quebec, Ontario
1992-2001

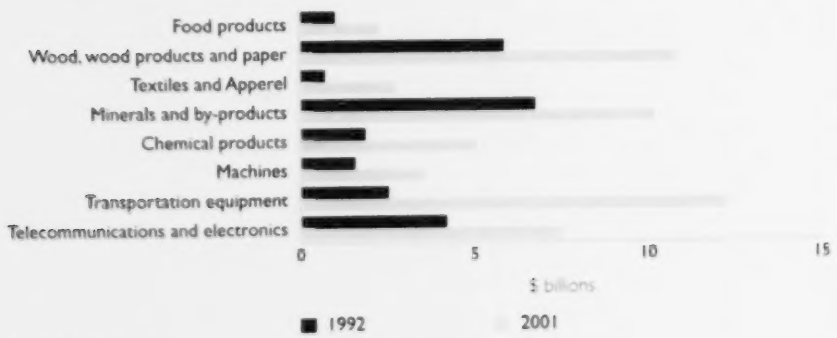


Source: Industry Canada.

This switch from natural resources to manufactured goods has enabled SMEs to become more active on international markets, either directly by exporting to foreign markets, or indirectly as suppliers of intermediate goods to exporting firms. Outsourcing and subcontracting have become the norm in several sectors in Quebec. The aerospace industry is a good example of this. The major corporations forming the core of the aerospace sector export their products to global markets. To do so, these corporations, in their production processes, use the services of more than 100 subcontracting SMEs in the Montreal region alone. The advantages of access to a broader market are thus accessible to a growing number of Quebec SMEs.

18- Composition of Quebec's international exports

1992 and 2001



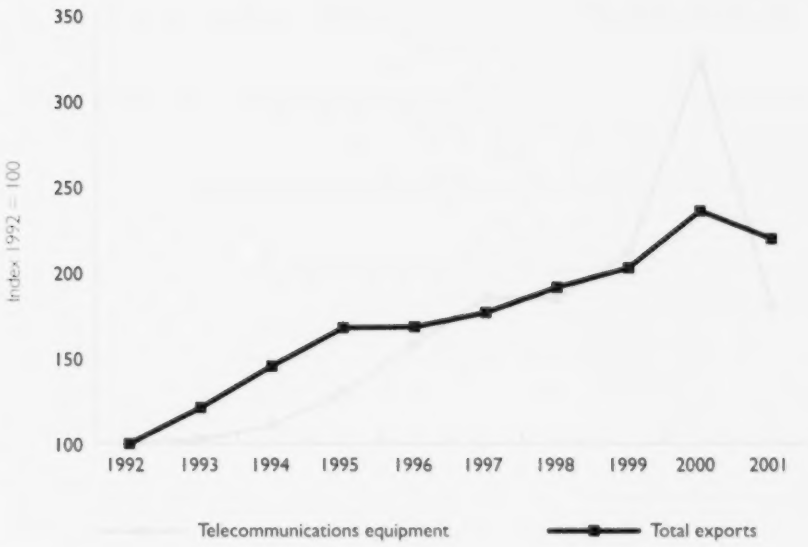
Source: Industry Canada

No economy or sector is sheltered from a difficult international economic situation.

There is another side to every coin. A consequence of increased integration in a global economy is that economies and enterprises are no longer sheltered from external shocks. Electronic and communications equipment is a clear example of this. This sector, highly integrated globally, experienced a major setback in 2001, as a result of a very difficult international economic situation.[19] The loss of $6 billion in exports from this sector between 2000 and 2001 played heavily in the $5.5-billion drop in Quebec's total exports in 2001.

The telecommunications sector is currently undergoing major restructuring. Since this sector's products are central to the new knowledge economy, the future is still promising. However, the future for many of this sector's companies will remain uncertain, as several new players with lower production costs are expected to enter the market.

19- Growth in exports of electronic and telecommunications equipment in Quebec
1992-2001



Source: Canada Economic Development compilation from Industry Canada data.

2.5 Labour market

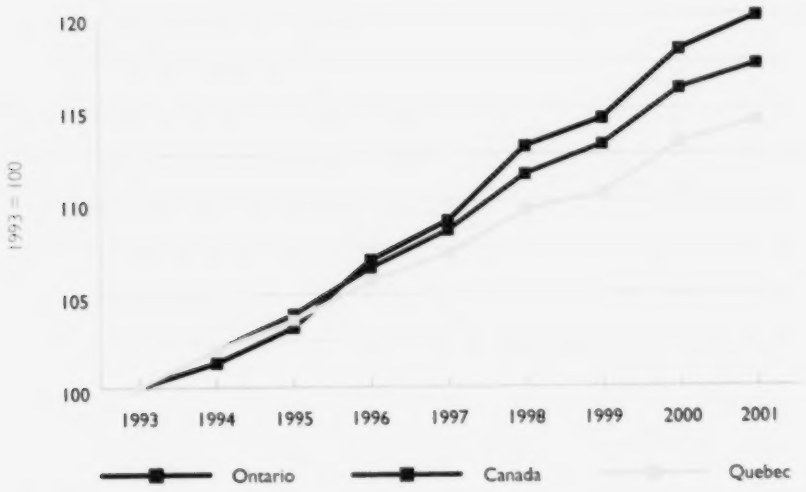
Unemployment down and job creation back up.

Conditions in Quebec's labour market improved considerably during 2002. The unemployment rate, which had remained above 10% throughout the 1980s and 1990s, dropped below 9% for 2001 and continued to decline in 2002.

The Quebec economy created more than 438,000 new jobs between 1993 and 2001, corresponding to annual average employment growth of 1.75%. Despite these gains, this performance remains beneath the Canadian and Ontario averages of 2.1% and 2.4% respectively for the same period. Nonetheless, according to Statistics Canada, with 168,000 new jobs, Quebec posted the best job creation performance of any Canadian province in 2002.

20- Employment growth

Quebec, Ontario, Canada
1993-2001



Source: Statistics Canada.

To clearly understand the issue of employment, one has to take the participation rate into account. This rate[11] is used to measure an economy's capacity to generate a sufficient number of jobs to occupy its labour force. Weak job opportunities push the participation rate down, as workers become discouraged and stop looking for work. Similarly, better job opportunities help move the participation rate up.

Historically, Quebec has had one of the lowest participation rates in Canada, and the gap between Canada's rate and Quebec's has held fairly steady over the past 20 years. While the gap between Quebec and Ontario has narrowed in recent years, Quebec's rate since 1981 has always been below the weakest rates posted by Ontario or Canada, even in periods of abundant employment.

21- Labour force participation rate

Canada, Quebec, Ontario

Source: Statistics Canada.

In future, slower employment growth than over the past five years.

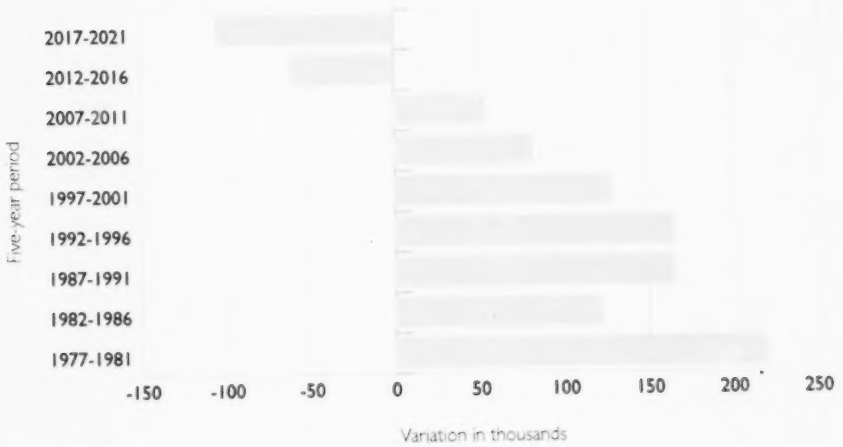
It is difficult to predict accurately what the employment and unemployment situation will be in five or 10 years. The most recent economic scenarios place employment growth between 1.1% and 1.5% a year over the next five years, and this should lead to the creation of 40,000 to 55,000 new jobs each year, substantially less than in the past two years.[12] Despite the anticipated slowdown in job creation, the labour market should remain quite favourable to workers over the next few years owing to factors limiting the labour supply. Once again, the province's demographic factors will play a major role in this regard. Thus, the impact of Quebec's aging population is starting to be felt as the older baby-boomers reach retirement age. The slower growth among the population constituting the core of Quebec's labour pool, namely, those aged 15-64, already seen over the past five years, will gradually be accentuated in the next few years, until that age group decreases in absolute terms from the first half of the next decade onward.

A profoundly changing labour market...

Joining this changing demographic context are major structural changes that will contribute to limiting labour force growth, notably the less rapid increase in women's labour market participation and the shorter period of attachment to the labour market.

The en-masse labour market entry of women has been a significant societal phenomenon of the past 25 years. In economic terms, it has helped increase the available labour pool considerably and injected additional vitality into economic growth in general and employment in particular. The historical gap between women's and men's participation rates has narrowed considerably over the past few years and should gradually close as today's cohorts of workers are replaced by younger people. However, this labour force growth factor will diminish over the next few years, as a result of the demographic slowdown.

22- Labour force (aged 15-64) in Quebec Changes 1997-2001 — Projections 2002-2021



Sources: Statistics Canada, Human Resources Development Canada (HRDC).

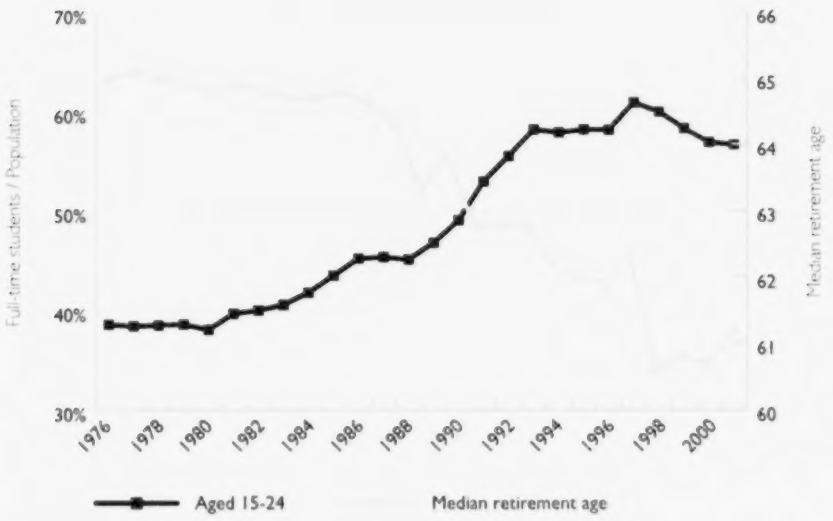
... increasingly favourable to job seekers.

The shorter period of attachment to the labour market, measured by the number of years spent on the labour market from completion of studies to retirement, is a second significant societal phenomenon of the past few decades. Two series of factors that led to changes in behaviour explain this retreat. On the one hand, the extension of studies at the start of working life tends to delay labour market entry. While difficulties associated with the economic situation in the early 1980s and 1990s may partially explain this change in behaviour toward the labour market, improved access to education and the new requirements seen on the labour market confer a lasting character on this change.

On the other hand, the lowering of the retirement age also tends to reduce the duration of working life. Here again, during the last recession, the difficulties experienced on the employment front resulted in decisions to retire early. If the restructurings led many organizations to offer attractive financial incentives to certain labour categories to encourage them to retire, the layoffs affecting the least skilled older workers also prompted many of them to withdraw from the labour market for good. The enhancement of public pensions plans and greater access to private plans also go a long way to explaining the lowering of the retirement age.

23- Full time studies by young people (Quebec) and retirement age (Canada)

1976-2001



Source: Statistics Canada.

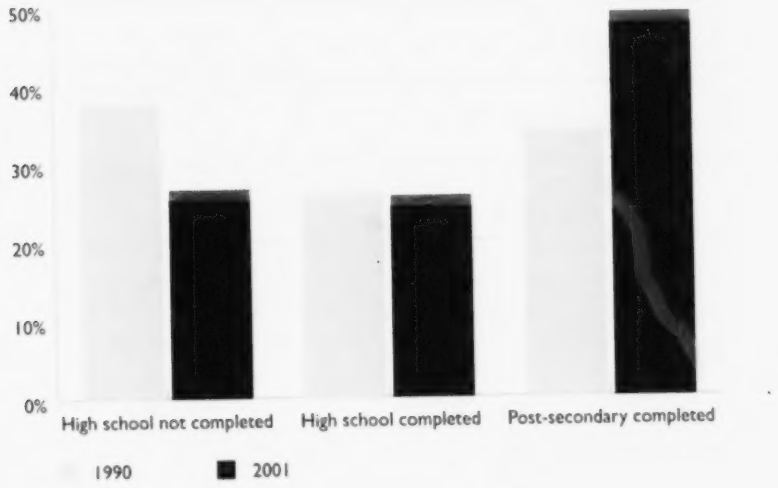
Slow demographic growth: a longer-term challenge for the labour market.

The factors limiting growth in the labour force supply, combined with job creation that will remain dynamic over the next few years, should lead to a labour market more favourable to job seekers. In the long term though, ensuring a higher standard of living for Quebecers will require faster labour force growth. This observation underscores the great importance that will be assumed, over the coming years, by questions concerning immigration, maintenance of competencies of the existing labour pool, and introduction of conditions conducive to reversal of the trend toward shorter working lives. In the latter case, however, this should occur without jeopardizing the important gains made by young people on the education front; that key to success on the other battleground of the standard of living: productivity gains (the question of productivity is discussed in Chapter 3.3).

If labour force growth is likely to slow over the next few years, Quebec's labour pool will nevertheless enjoy assets that will help it meet the competency challenge. As we have shown, school attendance has increased markedly over the past 25 years among the youngest segment of the working-age population, those aged 15-24. The impact of this persistent attendance at school beyond the mandatory age of 16 has already begun to be felt on the working-age population. Thus, the proportion of individuals who have completed post-secondary studies has risen substantially over the past 10 years, while the proportion of those who have not completed high school has dropped off steeply.

24- Level of education of population aged 15-64

Quebec, 1990 and 2001



Source: Statistics Canada.

Labour pool increasingly skilled...

The knowledge-based economy requires an educated, well-trained labour force. Increasingly, university graduation is becoming the norm. In 1999, Quebec, if placed separately from Canada, would have ranked fifth among OECD countries for the number of people aged 25-64 holding university degrees (18%), alongside Japan, Iceland and Australia and ahead of the United Kingdom (17%), Germany (13%), France (11%) and Italy (9%). The situation improved for those aged 25-34, with Quebec standing in third place (23%). This sound performance hides, however, the fact that Quebec is running severely behind the United States.

25- Percentage of population holding university degree by age group

1999-2001

Age	Canada	USA	Quebec	OECD
25-34	23	29	23	16
45-54	20	30	18	13
25-64	19	27	18	14

Source: Institut de la statistique du Québec, *Bulletin sur l'économie du savoir*, vol. 2, n° 3, April 2002.

...and experienced.

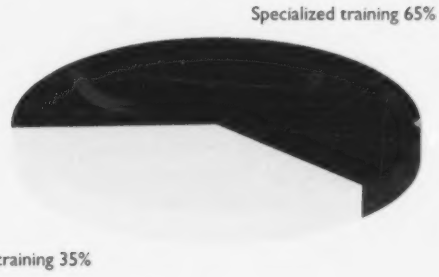
This observation is worrisome, since Quebec's future will be played out at the North American level. Thus, 61,500 more graduates would have to be added to Quebec's 235,000 graduates aged 25-34 in 1999 (or 26% more) to make up for the proportional discrepancy between the Quebec and U.S. university graduation rates.

The future looks bright nonetheless, as the increase in the average education level of the population of working age should continue over the next few years, as the generation that did not have the benefit of broader access to post-secondary education is replaced by the generation with more education. A labour force with a higher level of education adjusts better to changes in the work environment. In fact, being better prepared to continue their training throughout their working lives, those with more education also receive more employer-sponsored training than less educated workers do.

At the same time, the aging of the population will also tend to raise the labour force's level of experience. The average age of the working-age population moved up to 39 in 2002, from 38 in 1996, and is expected to reach 40 toward the middle of the current decade. More educated and experienced, the working-age population will never have been better prepared to meet the challenges of the labour market. In contrast, people with the least education and little training are experiencing increasing difficulty in finding jobs, even when the economy is flourishing, as is the case at present.

26- Distribution of employment growth by type of training generally required, Projections

Quebec, 2002-2006



Source: Human Resources Development Canada (HRDC).

Knowledge occupations will post the fastest growth over the next five years.

Knowledge-based jobs, which account for some 12% of the labour force, include numerous occupations in the engineering, computing, physical science and human and social science fields. These occupations are at the core of activities involving research and development, design and implementation of new technology and development of content feeding today's different information systems.

Manual workers associated with the production of tangible goods (machine operators, skilled trades, farmers, etc.) make up the largest group in volume. However, their growth will be limited by the displacement of economic activity toward the services sector and the significant potential productivity gains associated with the manufacturing sector.

27- Job market trends by occupational category, Projections

Quebec, 2002-2006

Source: Human Resources Development Canada (HRDC).

Close link between level of education and unemployment.

For their part, the categories of personnel providing services to the public (hairdressers, police officers, sales staff, etc.) and those associated with data manipulation (secretaries, technicians and technologists, etc.) should see quite similar growth to that of occupations as a whole. In this latter group, technicians and technologists will advance almost as strongly as the knowledge group, whereas projected growth among staff assigned to office tasks is somewhat limited.

The level of education varies a great deal from one region to another. Thus, the Montreal, Quebec City, Gatineau and Sherbrooke metropolitan areas boast the highest education levels, whereas the regions where the economy is more resource-based (Gaspésie—Îles-de-la-Madeleine, Abitibi-Témiscamingue,

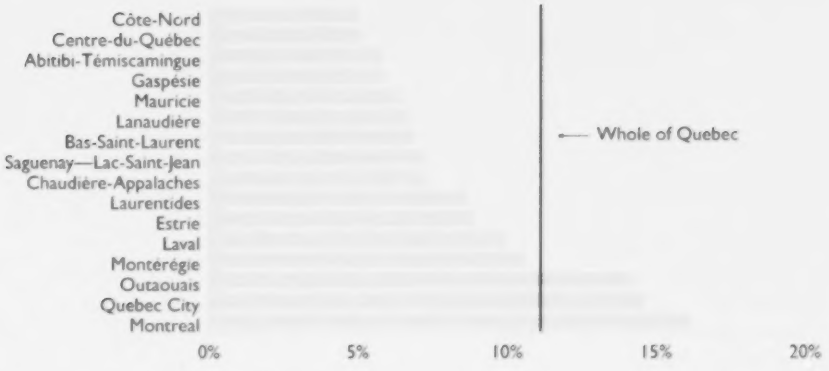
28- Correlation between level of education and regions' unemployment rates

	% of population with secondary school diploma (SSD) or less (2001)	% of population with university degree (2001)	Average unemployment rate (2001)
8 regions whose unemployment rates are below the provincial average[1]	59.1	10.6	7.35%
9 regions whose unemployment rates are above the provincial average[2]	64.1	8.4	11%

1 Quebec—Chaudière-Appalaches, Estrie, Montérégie, Laval—Laurentides—Lanaudière, Outaouais.
2 Gaspésie—Îles-de-la-Madeleine, Bas-Saint-Laurent, Abitibi-Témiscamingue, Mauricie, Montréal (administrative region), Saguenay—Lac-Saint-Jean, Côte-Nord, Nord-du-Québec, Centre-du-Québec.

29- Presence of knowledge occupations by region

Data for 2000



Source: Human Resources Development Canada (HRDC).

The knowledge economy is present in all regions, but to varying degrees.

Bas-Saint-Laurent and Côte-Nord) have the lowest levels of schooling, and have to contend with lower availability of skilled labour. A glance at the employment data confirms the very close link between unemployment and level of education. In 2001, the most educated regions posted unemployment rates below the provincial average.

All regions have benefited from the development of the knowledge economy over the past few years, but to varying degrees. Thus, knowledge economy-related occupations are not represented consistently in all regions of Quebec, primarily because of the regions' different industrial structures.

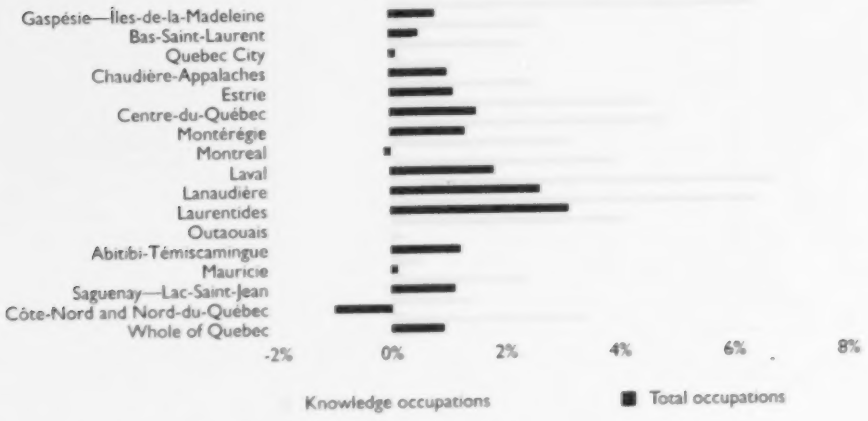
The Greater Montreal area boasts a substantial concentration of knowledge-oriented jobs owing to the strong presence of higher technology-intensive sectors, notably aerospace, telecommunications, information technology, pharmaceutical products and biotechnology. For the Quebec City and Outaouais regions, the sizeable public sector and the constantly growing professional, scientific and technical services sectors constitute major strategic assets.

On the other hand, owing to industrial structures dominated by primary processing, knowledge occupations are proportionally less present in the resource regions such as Côte-Nord, Abitibi-Témiscamingue and Gaspésie—Îles-de-la-Madeleine. Similarly, this category is less represented in the manufacturing regions such as Centre-du-Québec, Mauricie and Chaudière-Appalaches owing to the concentration of employment in more traditional manufacturing activities that are less technology intensive.

Beyond the place occupied by the knowledge economy in each region of Quebec, employment growth in knowledge-related jobs has been greater than in occupations as a whole in all regions of Quebec, with the exception of Abitibi-Témiscamingue, over the past decade. This must be seen, of course, as the effect of industrial diversification in many regions. However, this situation above all reflects the growing use of this manpower within all industrial sectors, including the most traditional

30- Annual average employment growth rate

Knowledge occupations and total occupations by region
1990-2000



Sources: Statistics Canada, Human Resources Development Canada (HRDC).

CONCLUSIONS

1. Demography will be one of the major challenges that Quebec will have to meet in the years to come. The very slow demographic growth anticipated and the migration of young people to urban centres will exacerbate the already difficult problem that many rural or remote regions have to contend with.

2. Quebec's economy is Canada's second largest after Ontario. Since the late 1990s, Quebec has posted a solid economic performance, but the gap with Ontario remains for most of the prime economic indicators. Over the past decade, Quebecers' wealth has risen little, as their disposable income has grown more slowly than the economy. On the other hand, the sustained growth of Quebec's external trade since the early 1990s is a positive element. Another encouraging sign is that exports are increasingly diversifying toward higher value-added activities.

3. Quebec's labour market context should be favourable to job seekers over the coming decade, as a result of very slow demographic growth and the aging of the labour force. Workers associated with the knowledge economy will be in especially high demand, but unskilled workers and those with little education will have increasing difficulty finding jobs.

INNOVATION

Chapter 3

Innovation

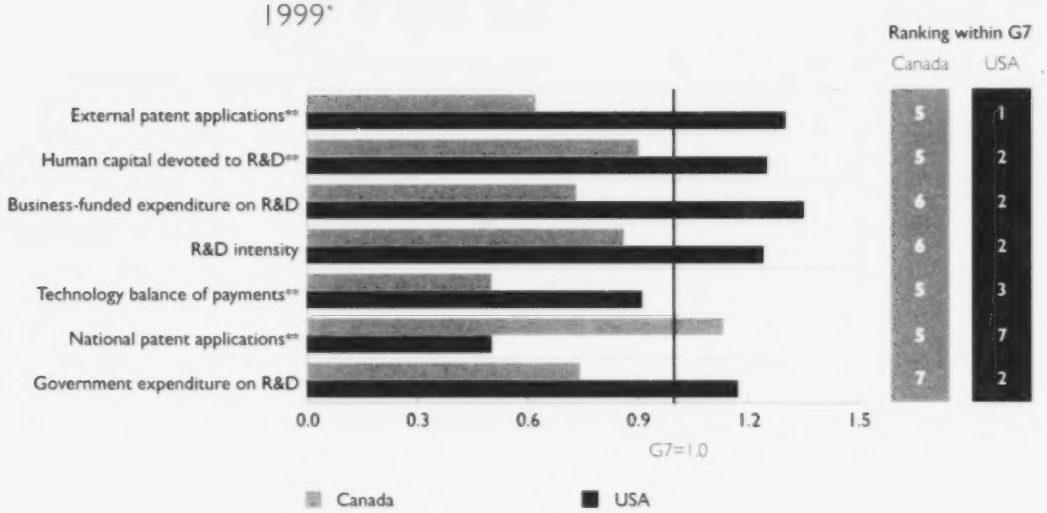
3.1 The new priority

Maintaining enterprises' competitiveness on foreign markets requires systematic recourse to innovation

In an increasingly globalized economy, innovation through the creation, dissemination and application of knowledge becomes essential for maintaining the competitiveness of regions and enterprises. In our view, innovation must be seen in a very broad context. It includes the development and design of new products, the establishment of new production processes and the adoption of new business practices and new management processes.

Most countries are currently reviewing their innovation support policies and programs to contend with the new context imposed by globalization. According to *Canada's Innovation Strategy*, Canada and the provinces have a major challenge to meet. In terms of innovation capability, Canada indeed lags far behind the United States and the average of G7 countries.[11]

31- Canada's innovation performance
Standing relative to G7
1999*



* Or latest available year.
** Adjusted by size of labour force.

Source: *Industry Canada*, Achieving Excellence: Investing in People, Knowledge and Opportunity, *Canada's Innovation Strategy*, 2002, p. 16.

Reference marks refer the reader to endnotes on pages 75 to 77.

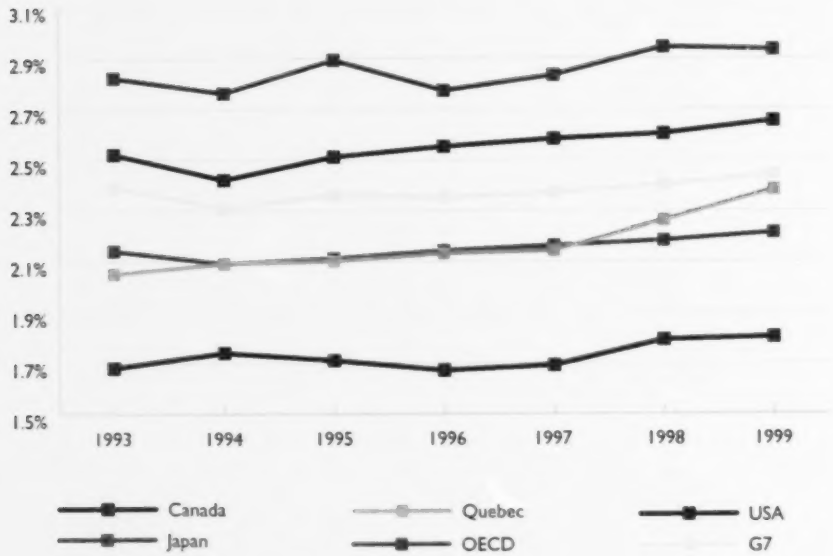
The percentage of GDP devoted to research and development (R&D) remains one of the most commonly used indicators to measure support for innovation. With 1.83% of its GDP earmarked for R&D in 1999, Canada brings up the rear among industrialized countries.[11] By comparison, the effort of OECD member nations averages 2.21% of their respective GDPs, while for the G7 countries it averages 2.44%. However, Quebec stands out from Canada as a whole in that it has for several years posted the best performance of any province in terms of support for R&D. In 1999, R&D spending accounted for 2.42% of Quebec's GDP, virtually identical to the G7 average (2.44%), and ahead of Ontario (2.23%).

Quebec's R&D effort far exceeds the Canadian average and is on a par with the best.

The distribution of R&D spending is very uneven among Canadian provinces. In fact, most R&D is performed in Ontario and Quebec. Thus, according to 2001 data, Ontario accounted for 51% of Canadian R&D expenditures, and Quebec for 28%. In both cases, this proportion is higher than their economic weight, as measured by their respective contributions to the national GDP, at 21.2% for Quebec and 42% for Ontario. Furthermore, 63% of Canadian universities with major R&D programs are located in the two provinces.

32- Gross domestic expenditure on research and development (GERD)

As % of GDP - 1993-1999



Sources: OECD, Statistics Canada.

The direct R&D effort from the private sector in Canada and Quebec is inadequate... but is partially offset by the universities.

Canada's backwardness with respect to the G7 countries is primarily attributable to its R&D funding structure. The proportion of industrial investment in R&D in Canada is indeed lower than elsewhere. In 1999, the private sector thus accounted for only 42.6% of Gross Expenditures in Research and Development (GERD) in Canada, compared with 63.1% for the OECD nations, despite the existence in Canada and Quebec of R&D tax incentives among the most generous of any industrialized country.

The weak support for R&D from Canada's private sector is, nonetheless, somewhat offset by a more intense effort from the university community, which performs 30% of R&D in Canada and Quebec, compared with 13.9% for the U.S. and 17.1% for the OECD. Some specialists[15] wonder, however, about how capable academic circles might be of further intensifying their involvement in applied research beyond the optimum threshold.

33- International comparison of R&D funding and performance

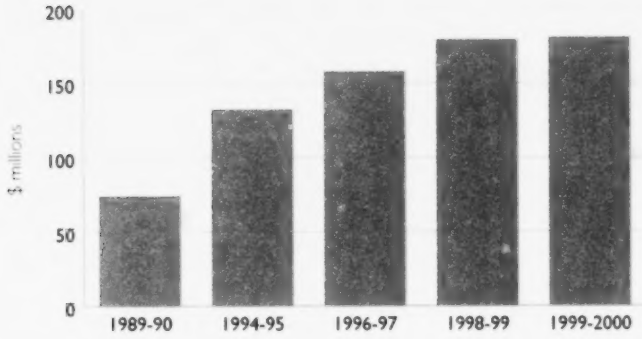
Country	Gross domestic expenditure on R&D - 1999						
	Funding (%)			Performance (%)			
	Industry	Govern-ment	Other	Industry	Higher education	Govern-ment	Other
Germany	65.0	32.5	2.5	69.8	16.5	13.8	-
Australia	45.5	47.4	7.1	45.6	29.2	23.2	2.0
Canada	**42.6**	**32.3**	**25.1**	**57.0**	**29.9**	**12.1**	**1.0**
Quebec	**54.2**	**19.2**	**26.6**	**61.4**	**30.8**	**7.1**	**0.7**
United States	66.8	28.8	4.4	74.7	13.9	7.7	3.7
France	54.1	36.9	9.0	63.2	17.2	18.1	1.5
Japan	72.2	19.5	8.3	70.7	14.8	9.9	4.6
United Kingdom	49.4	27.9	22.7	67.8	20.2	10.7	1.5
OECD (total)	61.1	29.6	7.3	69.3	17.1	10.8	2.8

A large share of university R&D is funded by the private sector.

It should be pointed out that these statistics underestimate private-sector spending on R&D. In fact, a large share of private research in Canada and Quebec is entrusted to institutions of higher learning, thus underscoring the importance of collaborative links between universities and business. In Quebec, private-sector funding of university research is rising steadily, after more than doubling over the past decade to reach $180.5 million in 1999-2000. The challenge to be met is now to ensure that the potential results of this university research translate into adequate scientific and commercial benefits (including technology transfer) that will enable Quebec enterprises to innovate further and enhance their competitiveness.

34- Private-sector funding of Quebec university research

1990-2000



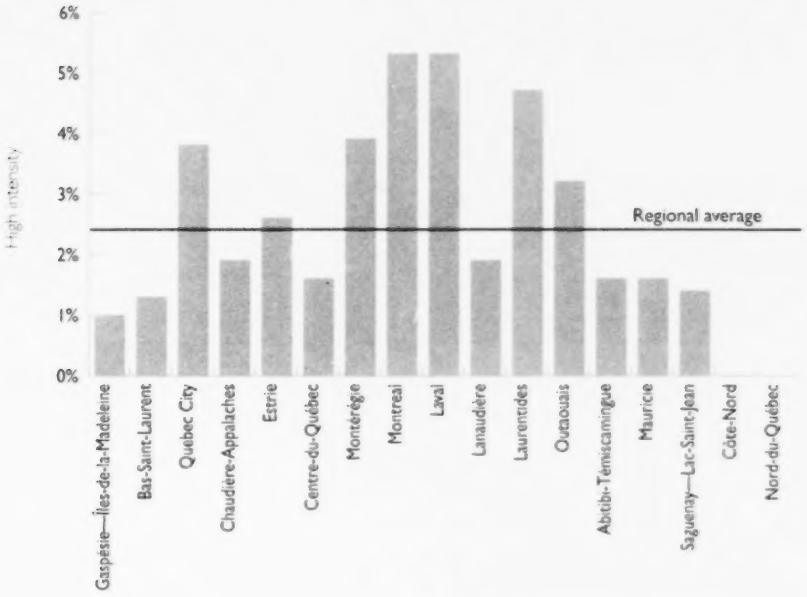
Source: Ministère de la Recherche de la Science et de la Technologie du Québec.

R&D is an essential element in innovation support.

Government R&D expenditures are an integral part of a comprehensive innovation support strategy. Total government R&D spending in Quebec in 1999 amounted to $893 million ($672 million for the Government of Canada and $221 million for the provincial government).[16] Public support for innovation and research is not restricted to direct government spending. Over the past few decades, Canada has developed an R&D and innovation tax incentive system (including R&D tax credits) that is among the most generous in the industrialized world, striding ahead of the United States, France, Japan and Sweden in this regard, according to the experts. Within Canada, Quebec is the province that offers the most attractive tax treatment for R&D both for large corporations and for SMEs.[17] In comparison, Ontario ranks eighth for large corporations and sixth for SMEs.

The geographical location of enterprises in Quebec, particularly those with R&D strategies, makes it possible to profile the regions' innovation capability. Technology-intensive enterprises are primarily sited in metropolitan areas (Montreal and Laval share first place, with Montérégie ranking third). Laurentides, while not an urban region, ranks second, since it has a number of large corporations that invest substantial sums in R&D. The Quebec City and Outaouais regions are to be found in the middle of the pack. The other regions show low technology intensity, reflecting industrial structures that demand less innovation.

35- Technology intensity of manufacturing enterprises by region



Source: *Quynh-Van Tran and Henri-Claude Joseph*, Intensité technologique des entreprises manufacturières du Québec : une analyse régionale, L'Écostat, *September 2001*.

The regions have to establish innovation strategies and local innovation systems in order to harness the opportunities.

The situation with respect to innovation varies from one region to another in line with the industrial structure, the presence of knowledge institutions, enterprises' openness to exporting and SMEs' level of subcontracting vis-à-vis prime contractors. Enterprises' openness to innovation depends on the extent and quality of their participation in business networks (clients, suppliers, competitors, consultants, industrial and professional associations, development players, university and college researchers, etc.). This network constitutes the enterprises' social capital.[18] A rich social capital makes it possible to establish the networks necessary for the development of local innovation systems bringing together all the key players in support of enterprises' innovation projects.

For many Quebec regions, development of a local innovation system has yet to take place. Initiatives aimed at encouraging links between enterprises and universities, and small enterprises and colleges (Cegeps), and at stimulating the establishment of networks can prove to be as effective as tax incentives in consolidating regional innovation systems and creating regions that are more knowledge-oriented. The development of local innovation networks could contribute to moving urban and rural zones, at their own pace, toward a knowledge economy, thus enabling them to develop and diversify their economic base.

3.2 Investment - a "must"

Innovation goes hand in hand with, or is often accompanied by, capital investment. Sometimes this investment is linked directly to the innovation process. In other situations, innovation requires prior investment. So, to be in a position to conduct electronic business, one has first to have adequate communications equipment.

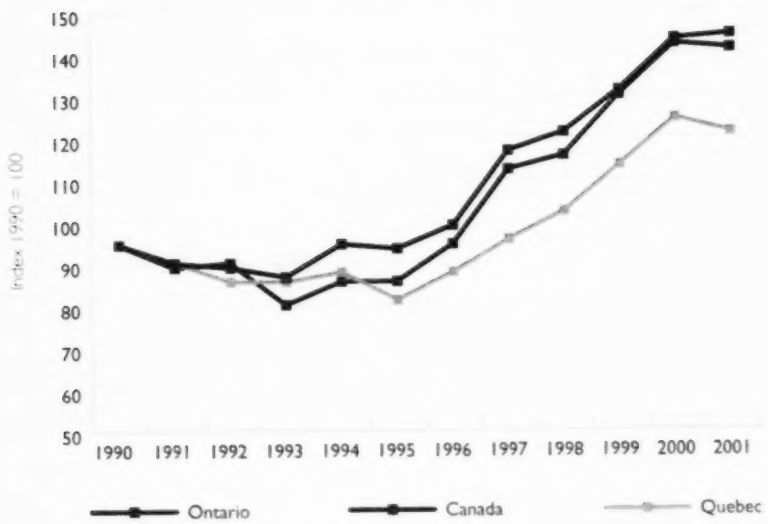
Investment can take various forms. It may involve new projects, such as construction or modernization of a plant, or replacement of existing facilities. In either case, it is treated as capital spending.

Since 1995, capital spending, measured in terms of fixed capital formation in relation to gross domestic product, has increased substantially in Canada, Ontario and Quebec. Capital spending is an investment in the future. During the first half of the 1990s, the future was uncertain; Canada was emerging from a serious economic recession, governments were cutting back on their investment and the private sector was opting for highly cautious management. Then, in the mid-1990s confidence returned. Governments and enterprises are once again beginning to plan for the future and to invest. Since 1995, capital expenditures in Quebec have risen by an average of some 9% a year, a performance somewhat behind that of Ontario, which recorded an average of 11% over the same period.

Since the mid-1990s, capital spending in Quebec has steadily increased.

36- Growth in capital expenditures

Canada, Ontario, Quebec
1990-2000



Source: Canada Economic Development compilation based on data from Statistics Canada.

The level of investment varies considerably by geographical location and size of region.

If one compares capital expenditures by region, one rapidly realizes that they are distributed unevenly. Unlike the approach adopted for GDP, capital spending assessed on a per capita basis does not offer a useful method of comparison. Take for instance fibre optics, which can serve thousands of individuals at once. If it costs $50,000 to install one kilometre of fibre optic cable, an area with 100 inhabitants will have received the same services as an area with 1,000 inhabitants if both areas make the same investment. On a per capita basis, the area with 100 inhabitants seems to benefit from higher investment — $500 compared with the $50 per person invested for the more densely populated area — despite the fact that both areas receive the same service. Naturally, an area whose population is much higher will usually justify higher capital expenditures, since a larger number of enterprises and individuals want the service. A larger area will need three or four fibre optic lines rather than a single one, since the number of users is greater. For comparison purposes, then, it is more prudent to use total capital expenditures per region, while taking into account the size of the population. Regions of similar size can be expected to have comparable capital spending. It is also interesting to note the breakdown of funding between public and private sources.

This approach appears reasonable. In fact, the data show a direct link between the size of a region's population and its ability to attract investment. Thus, small regions (with a population under 200,000) have great difficulty attracting private investment.

37- Regional distribution of investment by population size

Data for 2000

Population size	Region	Investment	% of total amount of investment	Source (in %)	
		(in $ millions)		Private funds	Public funds
0-200,000	Abitibi-Témiscamingue	987		91	9
	Nord-du-Québec	387	8.9%	40	60
	Côte-Nord	1,336		49	51
	Gaspésie— Îles-de-la-Madeleine	204		54	46
200,000 - 500,000	Bas-Saint-Laurent	758		79	21
	Saguenay—Lac-Saint-Jean	2,220	37.0%	90	10
	Mauricie	1,135		75	25
	Estrie	1,158		89	11
	Outaouais	1,050		69	31
	Chaudière-Appalaches	1,417		83	17
	Laval	1,188		79	21
	Lanaudière	1,026		78	23
	Laurentides	2,110		83	17
500,000 +	Montreal	9,773		79	21
	Montérégie	5,365	54.1%	81	19
	Quebec City	2,493		70	30

Source: Institut de la statistique du Quebec

With the exception of Abitibi-Témiscamingue, which has a strong presence in mining and forestry, there is very little private investment in regions with less than 200,000 people. It is primarily the injection of public funds that maintains a minimum level of investment in these regions. The data thus confirm how hard it is for a less populated region primarily focussed on development of natural resources to attract the private-sector investment necessary for diversification of its economic base.

The most populated regions receive most of the private-sector investment, while public-sector investment accounts for most of the investment made in the less populated regions.

Medium-sized regions, with populations between 200,000 and 500,000, are more successful than less populated regions in attracting private-sector investment. Saguenay—Lac-Saint-Jean posted the best performance of the regions in the second group. However, like Abitibi-Témiscamingue, where one major corporation dominates, most capital expenditures in Saguenay—Lac-Saint-Jean are made by a few large corporations in the natural resources and primary metals sectors, with other industries investing very little. It is interesting to note that, despite its small population, the Côte-Nord region would rank fourth in terms of overall capital spending if it were included in this second group.

In the final group of regions, those with populations of more than 500,000, the Quebec City region has the lowest level of capital expenditures. It is also the region with the smallest population in this third group. On the other hand, like the Outaouais, it receives more in public funding - a fact that arises due to the large presence of government institutions in both regions.

A comparison of investment data by region with enterprises' technology level (see Table 35) shows that weak private-sector investment goes hand in hand with low technology intensity. To succeed in an increasingly competitive global economy, technological innovation and the investment that supports it become a "must". The least innovative regions have to react and establish innovation support strategies to prevent the situation from deteriorating further.

3.3 Productivity

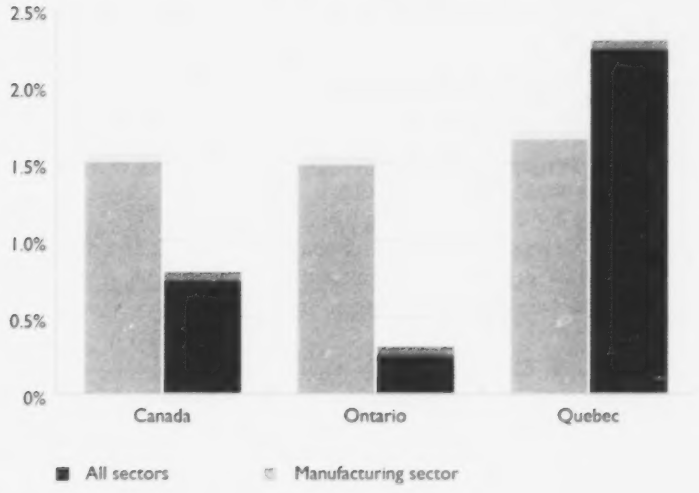
Innovation and productivity go hand in hand. Innovation helps to improve production processes, produce at better cost and reinforce management processes with, as a result, more productive, more profitable enterprises better equipped to sustain competition. There are various measurements of productivity, such as labour productivity, capital productivity or total productivity of production factors, but the most frequently used unit of measurement is value added per hour worked, or labour productivity.[19]

Innovation is essential for enhancing enterprises' productivity and competitiveness.

The productivity of the Quebec economy has improved markedly over the past few years.

On a comparative basis, Quebec posted for 1992-1998 a labour productivity level below Ontario and the Canadian average. Since then, the situation has improved. Thus, for 1997-2001,[7] Quebec recorded cross-sector average annual growth in labour productivity that surpassed Ontario and the Canadian average. The performance is even more spectacular in the manufacturing sector. Indeed, Quebec enterprises' productivity growth rose during that period at a rate far superior to Ontario and the Canadian average, primarily as a result of the excellent performance of the transportation equipment sector, which posted average annual growth of more than 14%.

38- Annual average labour productivity growth rate
1997-2001



Source: Centre for the Study of Living Standards, http://www.csls.ca.

Despite this sound performance, which enabled it to catch up somewhat, Quebec in 2001, in absolute terms, still lagged substantially behind Ontario and Canada on the labour productivity front across all sectors. The situation is similar for the manufacturing sector, although the gap is narrower. The manufacturing and transportation equipment subsectors are Quebec's strength. As for Ontario, it posts higher productivity in the agri-food, apparel, publishing, chemical products, non-metal manufacturing and furniture subsectors.

39- Labour productivity 2001
Real value added by hours worked
In 1997 constant dollars

	Quebec	Ontario	Gap	%	Canada	Gap	%
All sectors	33.78	36.99	+ 3.21	+ 9.5	35.47	+ 1.69	+ 5.0
Manufacturing sector	37.29	38.54	+ 1.25	+ 3.4	37.01	- 0.28	- 0.8

Source: Centre for the Study of Living Standards, Ottawa, August 2002, http://www.csls.ca

Quebec's lagging labour productivity is attributable to several causes. SMEs are more prominent in Quebec's industrial structure: 55.3% against 48.9% in Ontario.[11] SMEs tend to innovate less and to be less productive than large corporations. Moreover, Quebec SMEs are more heavily concentrated in traditional sectors less prone to innovation, such as: food, beverages, tobacco, rubber, plastics, leather, primary textiles, apparel, wood, furniture and accessories, and paper (46% in Quebec compared with 31% in Ontario and 37% in Canada).[12]

In the past, there was a tendency to associate productivity with investment in machinery and equipment and with continuous technological renewal. Increasingly, one has to acknowledge that productivity growth also depends on numerous other equally important factors that include the enterprise's business strategy, commercial strategy, human resources management, acquisition and maintenance of competencies, strategic, commercial and technological watches, new ways of doing things such as operating in networks and systematic use of new information and communications technology.

3.4 New business environment for SMEs

To survive and remain competitive, SMEs have to adopt new ways of doing things.

According to the University of Quebec at Trois-Rivières's Research Institute for SMEs, the business climate for small and medium-sized enterprises is undergoing a change.[13] New, much more demanding business processes are a necessity for SMEs, such as integration of logistics chains, just-in-time production and delivery, prime contractors' ever-growing requirements in terms of quality and ongoing cost reduction, much shorter product development cycles and a substantial reduction in products' useful lives. According to the *Mouvement québécois de la qualité*, large corporations have understood the need to adopt new, higher-performance business practices, whereas this seems much less obvious for SMEs,[14] which are unable to confront these new requirements alone. Traditionally isolated most of the time, SMEs now have to learn to operate in networks (of suppliers, competitors, clients and specialists) and to conduct strategic, technological and commercial watch activities.

Innovation-oriented enterprises increase their productivity much more than those that innovate little.

As we mentioned earlier, innovation ensures the sustained productivity growth essential to maintaining enterprises' competitiveness.[7] Systematic recourse to innovation is a requirement on all levels: products and processes, business processes related to management, recruitment, training and management of human resources, and acquisition and mastery of strategic, technological or commercial information. To date, Quebec's SMEs have, above all, limited themselves to technological innovation. To maintain their competitiveness and enhance their productivity on an ongoing basis, they will have to innovate further at every level.

SMEs can develop new markets and enhance their profitability through e-business.

New information and communications technology (NICT) can be used to do business differently and is a powerful strategic lever accessible to SMEs to enhance their productivity and competitiveness. Electronic business goes far beyond mere e-commerce to encompass all the SMEs' business and management processes including both work organization, production, inventory management and relations with suppliers and clients. NICTs also help reinforce the enterprise's watch capabilities (technological, commercial, strategic and prospective watches) that are essential for maintaining its competitiveness.

Exports: a strategic decision for SMEs.

The increasing openness of markets and falling trade barriers create new opportunities for enterprises. At the same time, for lasting success on these new markets, enterprises have to develop much more advanced business strategies and think in terms of strategic alliances, franchising and ongoing market prospecting. It is no longer a question of seeing exports simply as a convenient way of selling off production surpluses, but rather as an integral component of the enterprise's business strategy.

CONCLUSIONS

1. In a very open world economy, R&D and innovation will be essential for maintaining the competitiveness of Quebec's economy, enterprises and regions. For several years now, Quebec has invested substantial effort in supporting R&D, and this has helped it post one of the best R&D performances in any OECD country.

2. More R&D and innovation translates into productivity gains and enterprises better equipped to face the competition. Quebec has made considerable progress in terms of labour productivity over the past few years, but still lags behind Ontario, and even farther behind the United States.

3. In order to remain competitive and ensure their future growth, Quebec SMEs will have to raise their innovation levels, increase their use of new technology and agree to take a fresh look at their traditional ways of doing things. In the face of an increasingly complex business environment, a new management culture is needed. This new culture is based on an open, decentralized corporate leadership style, continuing development of new competencies, establishment of internal and external networks, and ongoing use of innovation in all its forms.

Issues **FACING** the **regions**

Chapter 4

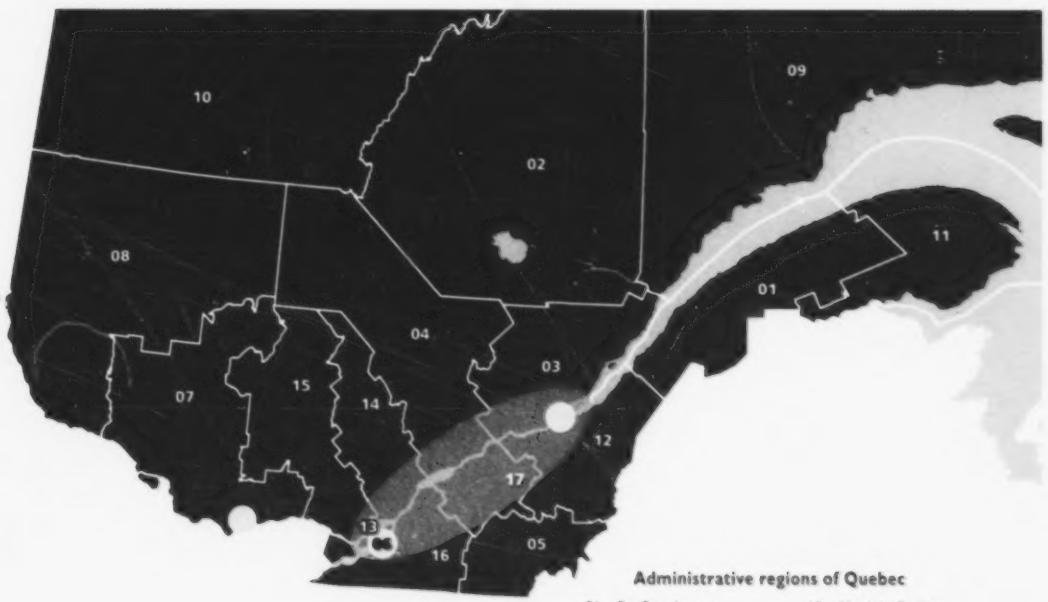
Issues facing the regions

The sustained growth enjoyed by Quebec over the past few years was not of equal benefit to all regions. Whereas the urban regions or those close to major centres posted a sound performance overall, things were quite different for the more distant regions, which had to contend with very slow economic growth on top of the negative impact of major structural upheavals in the resources sector.[26]

Types of regions

Regional economic development issues differ substantially from one type of region to another. For the purposes of our analysis, we will look at three types of regions: metropolitan regions, central regions and outlying or peripheral regions (often called resource regions).[27]

These three types of regions were analysed in a recent study on the future of the outlying regions of Eastern Canada,[28] published by Montreal's *Institut national de la recherche scientifique INRS-Urbanisation, Culture et Société* and Moncton's Canadian Institute for Research on Regional Development. The study first defines metropolitan regions — or census metropolitan areas (CMAs) — with 500,000 or more inhabitants. Central regions consist of areas located between an hour and an hour and a half's drive (100 to 150 km) from a major city. The other regions are considered outlying regions.



Administrative regions of Quebec

01	Bas-Saint-Laurent	10	Nord-du-Quebec
02	Saguenay — Lac-Saint-Jean	11	Gaspesie — Îles-de-la-Madeleine
03	Quebec City	12	Chaudiere-Appalaches
04	Mauricie	13	Laval
05	Estrie	14	Lanaudiere
06	Montreal	15	Laurentides
07	Outaouais	16	Montérégie
08	Abitibi-Témiscamingue	17	Centre-du-Québec
09	Côte-Nord		

Reference marks refer the reader to endnotes on pages 75 to 77.

Significant demographic decline... which should continue.

In 1996, as the map of Quebec above illustrates, the metropolitan areas (in yellow) were home to 55.6% of the population, while the central regions (orange) accounted for 26.5% and the outlying regions (green) for 17.8%.[29] Taking all the regions together, then, more than 80% of the Quebec population live in urban areas, a proportion similar to the situation across Canada. However, the population of the outlying and central regions mostly live in rural areas (localities with less than 10,000 inhabitants). This proportion is a little greater in the outlying regions (56.7%, as against 53.4% for the central regions); while the latter have a larger proportion of inhabitants living in towns of 50,000 people or more.

The study conducted by Polèse, Shearmur, Desjardins and Johnson confirms that the outlying regions are in a difficult economic situation which could yet worsen.

As the *2001 Census* data show, population changes continued, in Quebec as elsewhere in the world, with a concentration of people in metropolitan areas and central regions at the expense of the outlying regions. Between the 1996 and 2001 censuses, Quebec's six outlying regions saw their overall population fall by 35,215 or 3.9%.

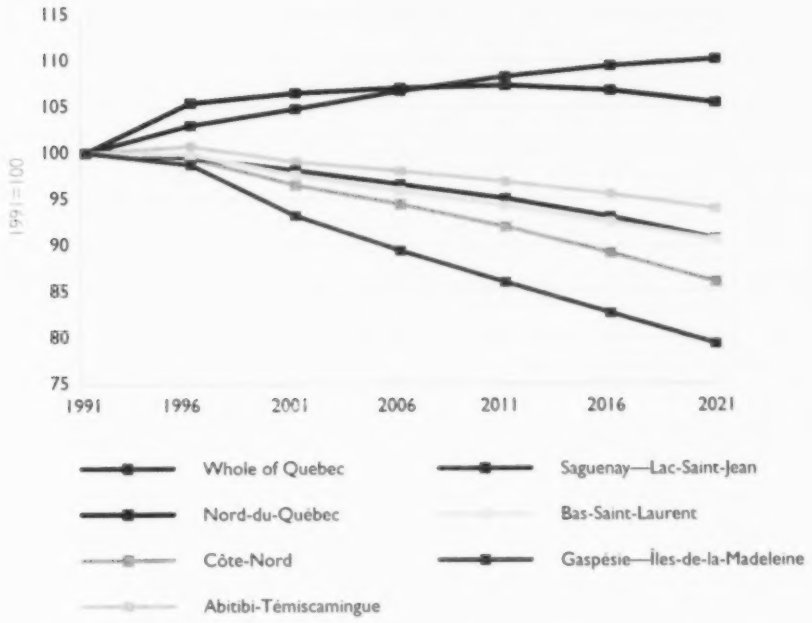
Among Canadian towns whose population showed the sharpest decline between 1996 and 2001, Baie-Comeau (minus 9.7%), Gaspé (minus 9.6%) and Port-Cartier (minus 9.3%) respectively rank ninth, tenth and eleventh. Rouyn-Noranda (minus 8.6%), Chibougamau (minus 8.6%) and Mont-Laurier (minus 8%) are also on this list, which mostly includes localities whose economy is based primarily on development of natural resources.

According to the *Institut de la statistique du Québec* (ISQ), it would appear that this demographic decline is a broad trend and that the population of the outlying regions will continue to fall over the next 20 years.

Like all the other regions, the outlying regions are not spared the increase in competition.

Aside from the declining population, the outlying regions have to contend on the economic level with a series of factors over which they have little or no control. The economic structure of these regions still largely depends on the resources sector, which is faced with a difficult world situation and has reached the limits of sustainable development. In addition, the capital-intensive nature of the resource industries continue to accentuate this trend; on the one hand, capital intensiveness raises labour productivity but, on the other hand, often leads to a substantial reduction in jobs. The case of Alcan in Saguenay—Lac-Saint-Jean is a striking example of this state of affairs. Over the past 10 years, Alcan has invested substantially to double its production capacity and confront world competition. Despite that, the level of employment has fallen considerably.

40- Population decline in Quebec's outlying regions



Source: Canada Economic Development calculations based on data from the Institut de la statistique du Québec, *2000, and Canada's 2001 Census.*

An increasingly difficult economic context for outlying regions.

Many communities in the outlying regions are heavily dependent on a single main employer, such as a pulp and paper mill or a sawmill. This lack of diversification of the economic base of these single-industry communities makes them very vulnerable to potential decisions made by this main employer. This dependency and fragility also extend to subcontracting SMEs, which have to contend with the repercussions of the prime contractor's decisions. In the central regions, and even more so in the metropolitan areas, increased diversification of the economy helps mitigate the negative impact of major corporations' decisions, but that is not the case for the outlying regions.

Numerous diversification efforts have been made by the outlying regions and governments over the past few decades, most recently on the basis of niches of excellence[41] focussing on more advanced processing of resources and use of new technology more in line with the philosophy of sustainable development. These initiatives have to be carried out with perseverance and ingenuity, since these regions naturally face some major obstacles associated with their distance from major centres, variable access to the major transportation and communications networks, and low population density, which contribute to raising production costs. The trend toward concentration and consolidation of manufacturing activities in locations where multiple procurement sources for production inputs can be used

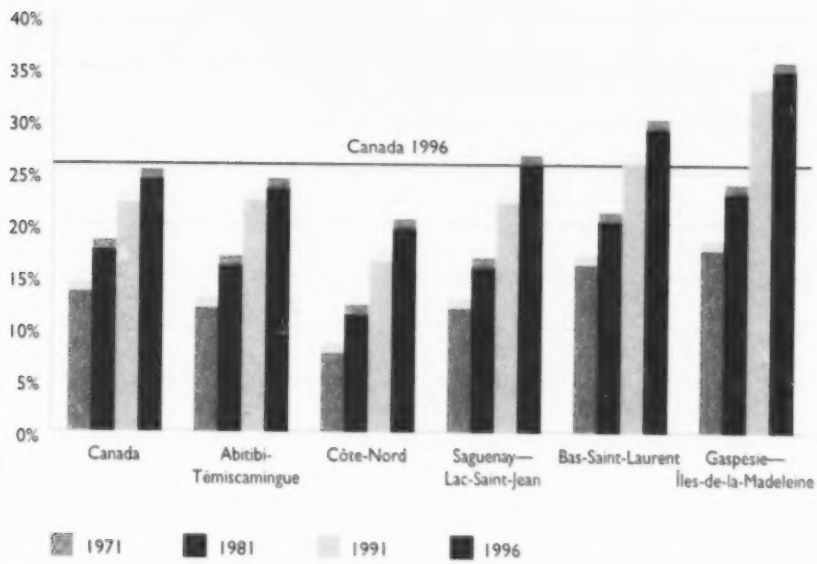
also accentuates the outlying regions' diversification difficulties. This dynamic, which is not inevitable, seems to play, at least for the present, in favour of the central regions, better located vis-à-vis domestic and U.S. markets, major transportation and communications networks and enjoy access to a larger pool of skilled labour. Finally, in some cases, the high wages paid by major resource enterprises, in themselves a major source of legitimate income, also complicates the recruitment of staff by SMEs.

The outlying regions' dependence on transfer payments is increasing.

Increased globalization of activities, in particular in the natural resources sector, imposes on the outlying regions increased competition with the world's other resource regions. Fiercer competition is also seen between outlying regions and metropolitan areas, as a result of new information and communications technology which makes it possible to centralize operations, such as wholesale trade, or to provide remote regions with new services. Also, the regions far from major centres cannot count on the necessary skills in adequate numbers, and are therefore doubly poorly placed to benefit from the new services based on the production and rapid exchange of often informal knowledge. To stay in the race, the outlying regions must be able to both benefit from high-performance communications infrastructure and to have access to extra-regional knowledge, expertise and innovation networks.

41- Transfer payments as proportion of total income in certain regions of Quebec

1971-1996



Source: Mario Polèse and Richard Shearmur with assistance from Pierre-Marcel Desjardins and Marc Johnson, The Periphery in the Knowledge Economy: The Spatial Dynamics of the Canadian Economy and the Future of Non-metropolitan Regions in Quebec and the Atlantic Provinces, *INRS and CIRRD, 2002.*

Over the years, Canada's political system has put in place a number of stabilizing mechanisms to support the income of Canadians affected by hard economic conditions. All of Quebec's outlying regions saw a constant increase in transfers as a proportion of total income between 1971 and 1996. As one would have expected, the weight of transfers increased particularly strongly in the Gaspé Peninsula, where incomes are the lowest.

A constraining operating framework.

Quebec's outlying regions are also in a poorer situation than the neighbouring Atlantic regions, either owing to their more isolated geographical location, as in the case of Gaspésie—Îles-de-la-Madeleine and Côte-Nord, or because of more constraining labour market or regulatory norms (higher minimum wage, industry-wide decrees in the furniture, apparel and construction industries). These constraints, some of which could be lessened, have major consequences in the regions where Quebec borders on New Brunswick. Moreover, the fact that they border on the United States works in favour of certain Atlantic regions, while Quebec's outlying regions benefit little or not at all from this proximity.

The outlying regions are not doomed, but they will have to make a major effort to adjust.

In an increasingly knowledge-based global economy, the main challenge of the outlying regions will be to successfully develop activities focussing more on harnessing knowledge, especially in the natural resources sectors, building on appropriate niches of excellence to offset the slowdown in more traditional activities. These new activities should in return contribute to the gradual revitalization of these economies, thus enabling them to continue contributing to the Canadian and Quebec economies, despite the obstacles they have to face. The forest sector, with its strong presence in the outlying regions and experiencing certain difficulties associated with exhaustion of the forest resource and the lumber trade dispute with the United States, offers good potential for adjustment. Systematic use of advanced industrial technology could give the forest sector a new lease on life and enable the regions that depend on this sector to consolidate their economic base.

CONCLUSIONS

1. While the situation of the outlying regions is difficult, they will continue to exist. Over time, a new balance should be found between employment and demographics, but based on smaller populations and fewer jobs.

2. On the public policy front, the fact will have to be accepted that innovation and entrepreneurship in outlying regions stem above all from the local fabric, and are not the outcome of magic solutions from outside.[41] Government strategy will have to facilitate these regions' transition to an economy where knowledge and technological content are more integrated. Support for education and recruitment of skilled labour will also have to be front and centre in government priorities.

3. The economic and community development agencies responsible for implementing these policies will have to have the greatest freedom of movement possible, including acceptance of greater financial risks, and their tools will have to be more flexible and better geared to local realities.

BRIEF LOOK

at certain sectors

Chapter 5

Brief look at certain sectors

Emerging sectors

The differences in economic context between urban and outlying regions rapidly become apparent when one looks at the issue on the basis of individual sectors. In this section, we will take a brief look at five sectors of special interest for Quebec's economic development. The first part of this chapter examines two sectors closely linked to the knowledge economy with a strong presence in the metropolitan economies of Montreal and Quebec City. The second part of the chapter focusses on two sectors associated with more typical industries of prime importance for the remote regions. The chapter ends with an overview of the tourism sector, which interests all the regions to varying degrees.

5.1 Health care and information technology

New ways of doing things in health care through information technology...

Enterprises involved in information technology applied to the health care sector are contributing to the emergence of a new economic sector in Quebec, especially in the Montreal area. This new sector, whose probability of success is high, joins the other high technology sectors such as bio-pharmaceuticals and aerospace, and strengthens the Montreal area's strategic positioning in the knowledge economy.

Information technology and its multiple applications are essential for the knowledge economy. New areas of expertise which are still at the beginning of their development cycle are regularly appearing. As a result, this new expertise generates profound changes in traditional ways of doing things in many sectors. This observation is especially topical for the health care sector, in both Canada and Quebec.

... that offer attractive development potential for enterprises.

The sector of information technology applied to the health care field is quite vast. It includes all aspects of information technology, from hardware, software and integrated systems development to Web platforms and advanced telecommunications tools. It also encompasses all aspects of health care, including medical drugs and their administration, surgery, prevention and patient follow-up, and all the elements aimed at enhancing the productivity of medical institutions, from the neighbourhood clinic to the provincial health department.

For the past several years, the health care sector has had to contend with difficult issues caused by, among other things, the aging of the population, the switch to home care and the urgent need to enhance the efficiency of the hospital system so as to raise the quality of care and contain spiralling costs. At the same time, the Quebec health care sector has some strong points, such as its excellence in R&D or the world-renowned expertise of some of its hospital departments, such as cardiology. The increased use of information technology could enable the health care sector to meet the management challenges imposed on it by the aging of the population while enabling it to reinforce its areas of expertise.

Reference marks refer the reader to endnotes on pages 75 to 77.

A rapidly developing strategic sector

The sector of information technology applied to the health care sector includes more than 100 enterprises, employing more than 3,000 people in all. The industry is characterized by a small number of large corporations and the continuous creation of new enterprises. In 2000-2001, the sector posted growth of just over 10%.[15]

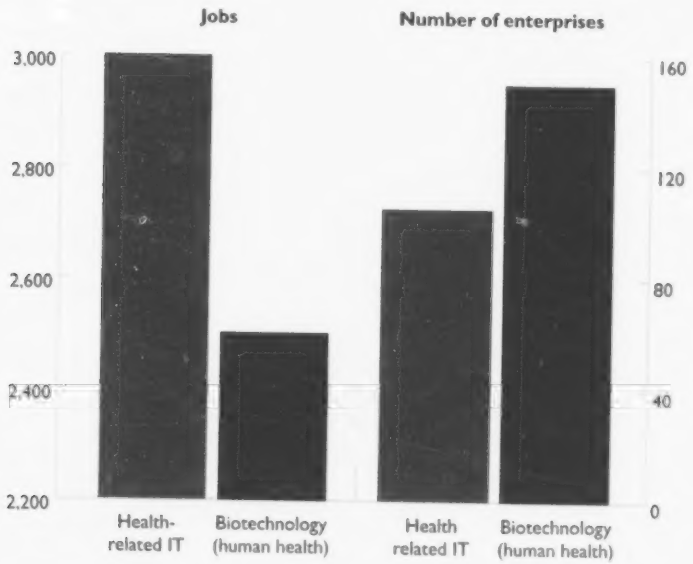
Beyond the great diversity seen in the industry, a certain concentration of expertise is noticeable, in training tools, telemedicine and medical imaging, for instance. In the imaging sector alone, Quebec has more than 10 firms specializing in the processing, distribution and archiving of images. These techniques are used, for example, in combination with artificial intelligence for assisted detection of cancerous tumours or for designing prostheses.

Biotechnology's little-known cousin!

It is interesting to note that the size and growth rate of the sector of information technology applied to health care are comparable to those of the biotechnology sector, which is well known for the strength of its expertise in Quebec and for its growth potential. The health care IT sector boasts fewer enterprises but provides more jobs than biotechnology does.

42- Comparison of applied IT sectors in health care and biotechnology in Quebec

Data for 2000



Sources: E&B DATA, Statistics Canada, Chaire en gestion des bio-industries *(UQAM).*

It is estimated that more than 75% of enterprises in this sector are located in the Montreal area. Their impact is starting slowly to be felt elsewhere in Quebec, as other large centres have begun to show an interest in the potential of IT applied to the health care sector. For instance, the Quebec City region is increasingly pushing its expertise in the field. It was also in Quebec that a new initiative began in April 2002: *Québec Biophotonique*, which seeks to create a new economic niche in Quebec by using scientific and industrial linkages to bring together the life sciences, optics and photonics. The combined use of optics and photonics is thus drawn on for the development of new generations of diagnostic, therapeutic and surgical tools that are easier to apply and offer better performance. Several clinical applications are already in advanced stages of development, notably with regard to cardiology, ophthalmology and oncology. Unlike traditional medical practice, biophotonics offers the advantage of avoiding taking tissue or biological liquid samples while maintaining the integrity of the human tissue. As a result, the patient's rehabilitation time is substantially reduced, as are the health care costs. The *Université Laval*, the *Université de Sherbrooke* and the provincial scientific research institute, *Institut national de la recherche scientifique*, contribute to this research.

Beyond these urban initiatives, the establishment of specialized Internet services should increasingly enable the population in remote regions to have instant access to high-level expertise. Thus, among the services already offered in several Quebec regions are virtual information sites specializing in obstetrics, dermatology and ophthalmology. Telemedicine is advancing by leaps and bounds, with major potential spinoffs for the population in remote regions. In order for this potential to be fully realized, it will be necessary to ensure that the necessary technological infrastructure is available, such as high bandwidth communications networks, throughout Quebec.

The future looks promising.

Technological entrepreneurs use imagination and knowledge to put forward new solutions which, while improving patient outcomes, will help bring down costs and enhance the efficiency of the health care system. Through its purchasing power, the government can play an important role in the development of a health-oriented technological niche. In terms of spinoffs, the potential is all the higher when one thinks of the R&D expertise being developed. As the current boom in the biotechnology sector in Quebec demonstrates, entrepreneurship and R&D expertise combine to form two pillars of the sector's future growth, with a potential to attract foreign firms and researchers. But the future is not guaranteed for enterprises in the health care technology sector. In fact, the sales cycle is long, since it involves doing business with large public health institutions whose decisions concerning technology can only be made in stages. The length of this cycle supposes working capital needs that may be high, especially for SMEs and their financial partners. Nonetheless, inasmuch as local successes will act as showcases for headway on the vast export markets, the health care sector offers a potential which could make it one of the next spearheads of growth in the IT sectors in Quebec.

5.2 Bio-industry

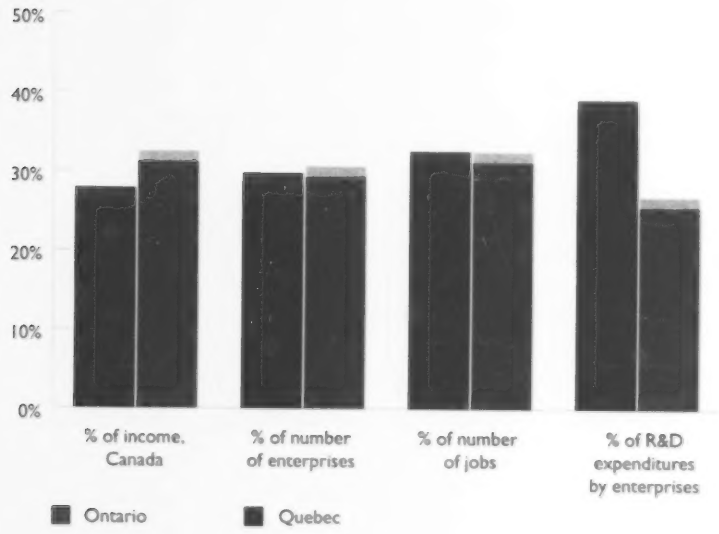
Bio-industry comprises all industrial activities carried out by means of biotechnology (economic enhancement activities based on development of technology and life sciences). The bio-industry sector emerged economically during the 1980s. Since that time, it has developed by combining a series of factors, such as: Quebec's recognized competency in research and innovation, especially in the health care field; the presence of a pool of universities and research centres of international calibre; an attractive fiscal and regulatory environment for enterprises; and adequate financial support from government and venture capital companies.

In 1999, Quebec's bio-industry enterprises made up 30% of all Canadian entreprises in the sector, accounting for 33% of jobs and 28% of revenue generated. This performance compares favourably to Ontario's, which accounted for 31% of enterprises, 33% of jobs and 33% of revenues.

Quebec: a force in Canada's bio-industry scene.

43- Bio-industry in Canada

Quebec and Ontario respective shares
Data for 1999

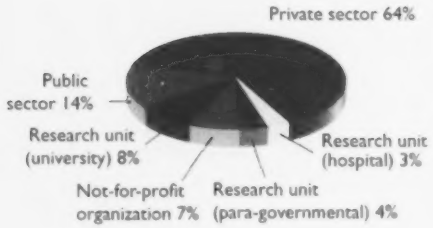


Source: Statistics Canada.

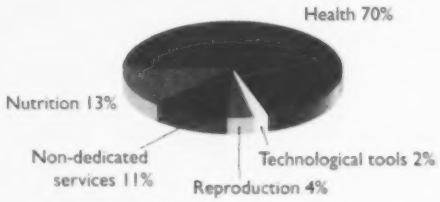
On the other hand, Quebec stands out considerably from Ontario and the other provinces in terms of R&D spending by entreprises, with 40% of the Canadian total, whereas Ontario had 27% of the total.[55] Since R&D is the engine of bio-industry development, the vitality and quality of the research conducted in Quebec are strategic assets for the competitive positioning of the province's bio-industry enterprises both nationally and internationally.

According to the University of Quebec at Montreal's Chair in bio-industry management, in 2000, Quebec had 346 entities active in bio-industry, bringing together private enterprises, research centres and support agencies. Of this number, 80% (278 entities) were active in the development and marketing of solutions arising from the harnessing of life technologies.[4] The private sector is the main player (64%), with health care predominant among enterprises' main areas of activity (70%).

44- Quebec bio-industry players



Distribution of Quebec bio-industry enterprises' areas of activity



Sources: Répertoire des entreprises des bio-industries du Québec, Chaire en gestion des bio-industries, *ESG-UQAM, 2001 and* Entreprendre *magazine, June-July-August 2002, p. 39.*

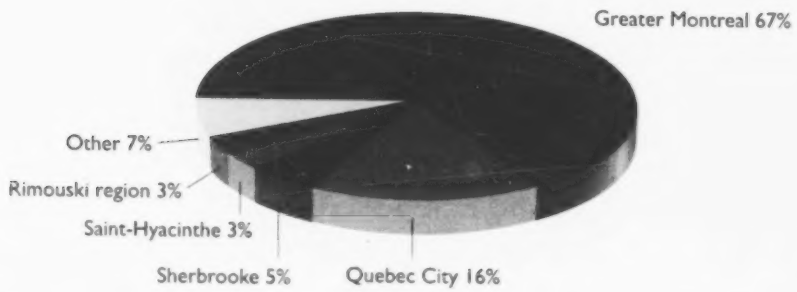
Bio-industry is concentrated in Montreal and Quebec City, but other regions also afford attractive opportunities.

Basic research and R&D are essential for the development of bio-industry and explain why they are primarily built around innovative environments. Bio-industry is mainly present in the Greater Montreal and Quebec City areas, as a result of the concentration of the biopharmaceutical sector (human health) in those two areas and in view of their excellent research and transfer infrastructure. Several other Quebec regions also offer a well-developed, attractive environment and research infrastructure for bio-industry. Thus, international-calibre university centres and government research centres recognized for their scientific excellence are to be found not only in Greater Montreal and Quebec City, but also in Sherbrooke, Saint-Hyacinthe and Rimouski.

The future is promising for the bio-industry sector.

The pace of Quebec's bio-industry development is set to pick up over the next few years. Quebec is well placed to increase its penetration of the sector. To that end, the biopharmaceutical cluster will have to achieve as much success as in the past in the emerging human health sector of genomics, and with respect to the applications stemming from it (protoemics, pharmacogenomics). In order to support the strategic positioning and growth of these emerging sectors, development of bioinformatics must be made a priority. Bioinformatics is indeed increasingly essential for researchers in various disciplines in enabling them to collaborate and work in networks.

45- Distribution of Quebec biotechnology enterprises by region



Source: Répertoire des entreprises des bio-industries du Quebec. Chaire en gestion des bio-industries, *ESG-UQAM, 2001.*

Quebec will also be able to enhance its strategic positioning in bio-industry by focussing on special niches of expertise. For instance, in a context of sustainable development and sound management of the environment, Quebec's assets in the biomarine, bioforestry and biopesticide fields could, if developed well, lead to the development of strategic niches bringing development for all Quebec regions. Thus, the presence of uncontaminated agricultural soil could for instance enable Gaspé and Témiscamingue to develop niches of expertise in phyto-pharmacology and biological agriculture.

Important sectors for the regions

5.3 Forest sector

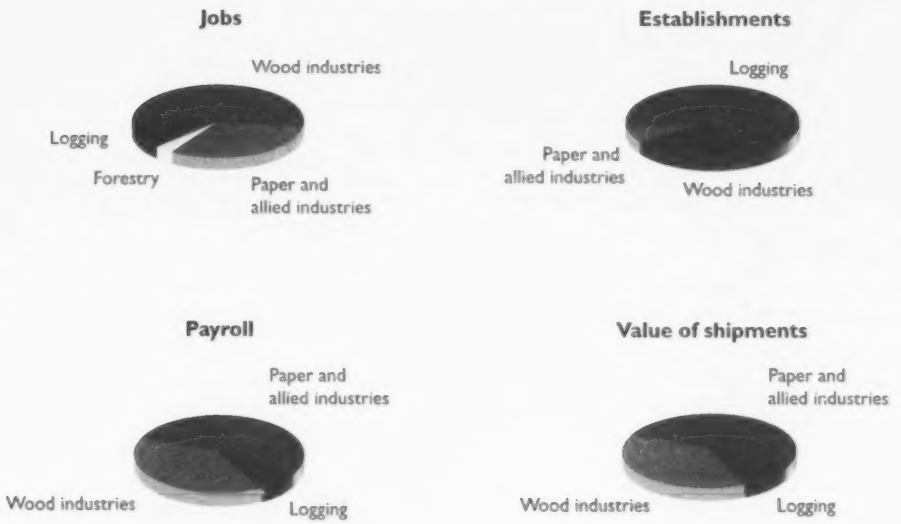
The forest sector makes a significant contribution to the Quebec economy, especially in the regions.

There is more to Quebec than laboratories in cities. It also includes several regions where nature and development of natural resources still occupy an important position. Quebec's forest covers more than 75 million hectares, or more than the surface area of Norway and Sweden combined. Quebec's forests make up some 20% of all Canadian forest land or 2% of the world's forest resource. The vast majority (89%) of forest land is provincially owned. Three types of forests are to be found: softwood forest (72% of the total surface area), hardwood forest (15%) and mixed-stand forest (13%). Annual allowable cuts (AACs) are gauged at 54.8 million cubic metres, or close to 25% of AACs for the whole of Canada.[55] The 11% comprising private woodlands belongs to 130,000 owners, and is a significant component in the economic fabric of many rural and remote communities.

The forest sector is an important element in the Quebec economy. For 2000, this sector boasted 110,000 jobs, or 29% of all Canadian forestry jobs. Close to 3,178 establishments gravitate around this industry, which generates $3.3 billion in payroll. The total value of shipments stands at $20.3 billion, of which $12.2 billion is headed for foreign markets. The main products exported are newsprint, softwood lumber, wood pulp and other papers and boards. More than 87% of these exports go to the United States, 7% to countries in the European Union, and 6% to other markets.

46- Forest sector and components

2000



Source: Canadian Council of Forest Ministers.

Forest products rank second among Quebec exports.

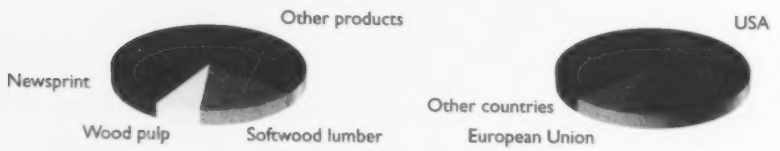
Exports of Quebec forest products reached a high in 2000 of $12.2 billion, helped along among other things by a beneficial exchange rate against the U.S. dollar.

Since 1980, three rounds of negotiations have been held and two agreements reached between Canada and the United States on trade in softwood lumber. The latest agreement goes back to 1996. Under the terms of this agreement, the provinces which export softwood lumber, namely, British Columbia, Quebec, Ontario and Alberta, agreed to limit their exports to the U.S. market voluntarily, prorated as to their output. This five-year agreement ended on March 31, 2001.

47- Value of exports by product type

Value of exports by market

2000



Source: Canadian Council of Forest Ministers, Compendium of Canadian Forestry Statistics.

Despite the effort invested, it has not been possible to date to reach a new agreement that is acceptable to both parties. As a result, the United States decided to lay a complaint before the North American Free Trade Agreement (NAFTA) tribunal, alleging that Canadian forest management practices were not consistent with the agreement, and announced their intention to impose countervailing duties. On May 2, 2002, the U.S. International Trade Commission confirmed that the U.S. government was fully entitled to impose countervailing and antidumping fees of 27.2% on Canadian lumber exports, thus supporting the American producers' claims that this sector was subsidized in Canada. This interpretation was not, however, accepted by the World Trade Organization (WTO) tribunal which, in a preliminary ruling handed down on July 26, 2002, rejected the American proposition that the Canadian industry was subsidized through the provincial forestry regimes. It will be necessary to wait for the U.S. Department of Commerce's final decision before the U.S.-imposed countervailing fees are lifted. In the meantime, discussions are continuing toward a negotiated settlement.

The softwood lumber dispute primarily affects the wood sector and its 702 establishments, which generate 53,000 jobs, $1.3 billion in payroll and a shipment value of more than $7.7 billion. In regional terms, the economic repercussions could be serious for several regions. Among other things, this industry is the main source of manufacturing sector employment for more than 150 Quebec towns and villages, most of them located in rural regions.

The broad trends observed for forest-related activities are worrisome, particularly for the outlying regions. One observation seems to emerge increasingly. Without being endangered, the forest industry has entered a consolidation phase that makes the potential for additional job creation in most of Quebec's outlying regions somewhat weak. The ever-growing importance given to management of the resource, reforestation and forest conservation should lead to the creation of additional auxiliary jobs in the future. It is unlikely that these jobs will fully offset the loss of primary jobs in the forest, as a result of constant productivity gains following increased mechanization of cutting methods.

Does the forest sector have a future? Yes, but it will have to resolve itself to reviewing its traditional ways of doing things.

At the same time, evolving production methods and the changing composition of numerous wood products accentuates the difficulty the outlying regions have in diversifying their output by incorporating more added value into it. Wood-based products in fact contain a growing number of varied species as well as materials from other sources, such as plastics and other synthetics. This growing diversification of inputs makes mills more likely to set up where they have easier access to both the various types of suppliers and their markets. For instance, the Quebec furniture industry is concentrated in small- and mid-sized towns that form a band between the Beauce and Montreal, close to the U.S. market.

In the future, the forest sector overall will have to change how it operates and give higher priority to planting fast-growing, higher-quality woody species so that new, higher value-added products can be developed, leading to less vulnerability to the application of countervailing duties on commodities such as lumber.

Use of new technology and automation of manufacturing processes could give a new lease on life to the forest sector and related activities.

Strategic planning of evolving production processes and business practices in the forest sector leads to some encouraging conclusions, though. Some say that technology could make it possible to optimize production processes, and thus develop new products with high added value. This trend has increasingly been seen since the imposition of U.S. countervailing duties. Thus, a number of sawmills have adapted their production processes accordingly in order to offer higher value-added products that are not subject to countervailing duties, with the result that they export as much as, if not more than, before to the U.S. market.

The challenges to be met remain significant, and sustained mobilization of all players interested in the sector is needed in order to review traditional ways of doing things and explore new ones. Such mobilization would lead to the attainment of several objectives. From the environmental viewpoint, it would ensure the sustainability of the resource through better use of the forest. From the sustainable development viewpoint, it would generate maximum economic spinoffs by favouring production of higher value-added processed products. From the regional economic development viewpoint, it would assist in the survival of several communities that depend on the forest sector for the maintenance of viable, better paid jobs.

Tourism is also an important aspect of the forest resource. Each year, more than 3.5 million Quebecers and tens of thousands of tourists from outside the province visit Quebec's forests to hunt, fish, or simply partake of outdoor activities. Spending associated with these activities is close to $2.4 billion, representing a significant economic input for many rural or remote communities. Sustainable, integrated management of the forest resource thus becomes essential for maintaining this strategic asset for the future of several regions.

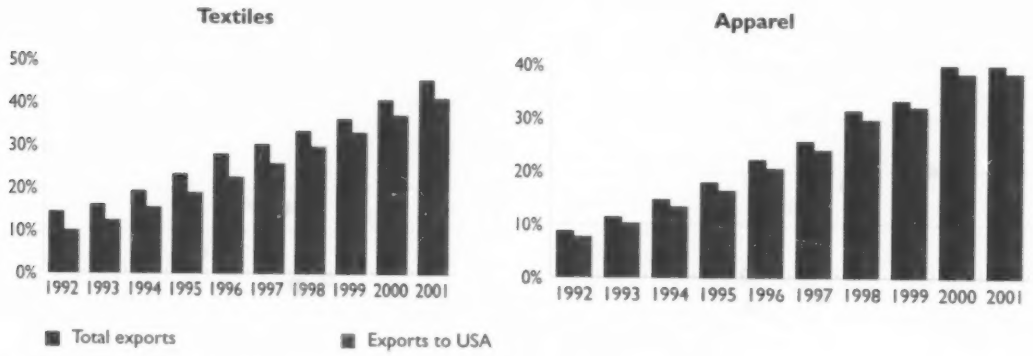
5.4 Textile and apparel sectors

Systematic use of technology is not restricted to sectors associated with the knowledge economy. Technology can also help certain more traditional sectors, such as textiles and apparel, to ensure their competitiveness in the future. These two closely linked industries are important for several Quebec regions. As with the forest sector, they can also be affected by changes in international trade agreements.

New rules of the game.

Quebec accounts for some 50% of Canadian textile output and 56% of apparel output. The Free Trade Agreement (FTA) with the United States and its successor, NAFTA, have substantially altered the rules of the game for these two sectors. From industries focussing on domestic demand, they have had, in order to offset the arrival of competition on the home market, to position themselves differently and develop external markets further. Between 1988 and 1998, Quebec exports of textile and apparel products rose markedly, while the total sales figure remained virtually unchanged. The free trade agreements have opened up the U.S. market to Quebec textile and apparel producers while giving foreign producers access to the Quebec market.

48- Exports as percentage of total output of Quebec textile and apparel sectors



Sources: Statistics Canada, Industry Canada, Canada Economic Development compilation.

Sectors providing employment for workers in several regions.

The textile products industry represents 5.1% of all manufacturing sector jobs in Quebec. The Greater Montreal area alone accounts for 38.8% of all jobs in the textile industry, followed by Montérégie (16.2%). The Centre-du-Quebec, Estrie and Chaudière-Appalaches regions also have a significant presence in this sector.

The apparel sector boasts twice as many jobs as the textile products industry, and accounts for 10.8% of Quebec manufacturing sector jobs. Montreal has 64% of all apparel sector jobs, followed by the Chaudière-Appalaches (6.8%), Estrie (6.7%) and Montérégie (5.8%) regions.

49- Regional distribution of employment in textile and apparel sectors

1998

Source: Statistics Canada.

The introduction of new business processes, such as just-in-time production and delivery of orders and inventory optimization, means that proximity to the market becomes even more important for the textile and apparel industries. This helps explain why these sectors are focussed in the Montreal area, near the U.S. market. Also, with its large urban pool, Montreal offers greater diversity and availability of manpower than the other regions.

The sustained ability to produce new designs and patterns is another important factor. Fashion evolves rapidly, and producers have to keep one step ahead of these changes so as to position themselves to deliver at the right time. The workers have to be skilled and adept at adapting to changing needs. The presence, in Montreal, of the *Institut supérieur du design de mode*, and numerous schools specializing in the field, explains textile and apparel firms' preference for the province's largest city.

Despite greater openness in the markets, Quebec's textile and apparel enterprises retain a competitive edge.

International competition is a serious concern for the textile and apparel sectors. Since low-end textile and apparel manufacturing requires little by way of skilled personnel, numerous developing countries are able to compete on the global market. Generally speaking, Quebec producers have always aimed for medium- to high-quality production. Not only has this enabled Quebec to forge itself a solid reputation for the quality of its products but, as the North American market is the predominant destination, producers have also had to meet the requirements of that market.

At the G8[1] Summit held in Kanaskasis, Alberta in June 2002, the Government of Canada announced its intention to open up its market to textile products from impoverished African countries. While this decision was made on humanitarian grounds, it has created serious concerns in some segments of the industry and in some regions. However, it is far too early as yet to tell whether it will have a serious impact on Quebec's enterprises and regions. In our view, the province's high productivity and excellent geographical location should enable Quebec enterprises to maintain their competitive edge over new producing countries.

5.5 Tourism

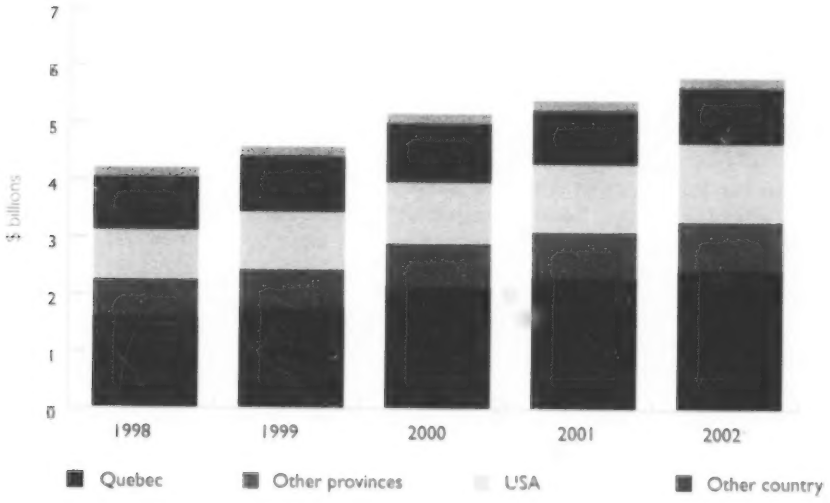
Tourism, an important sector for Canada and Quebec.

The importance of tourism in the economies of Canada and Quebec is constantly increasing. Tourism activity represented 2.2% of Quebec's GDP in 1999, whereas for Canada the proportion reached 2.4% in 2000. With more than 117,400 jobs,[17] employment associated with tourism activities as a proportion of total employment in Quebec stood at 3.0% in 1999. This labour-intensive service sector consists primarily of SMEs. Economic spinoffs from tourism are hard to gauge, since the industry is vast and complex, and its services are also used by the local population (restaurants, recreational activities). Moreover, spending by foreign tourists is accounted for as exports. Furthermore, definitions of tourism vary and include ambiguous elements.[18]

Tourist spending helps sustain economic activity.

In 2001, the 21.5 million tourists in Quebec spent $5.5 billion. Quebecers, who make up 70% of the visitors, accounted for 44% of the spending, whereas foreign tourists (United States and elsewhere), who comprised 16.2% of the visitors, accounted for 40.6% of tourist spending. Following sustained growth over the past few years, *Tourisme Québec* anticipates a strong 7.8% increase in tourist spending in 2002.

50- Tourist spending in Quebec
1998-2002



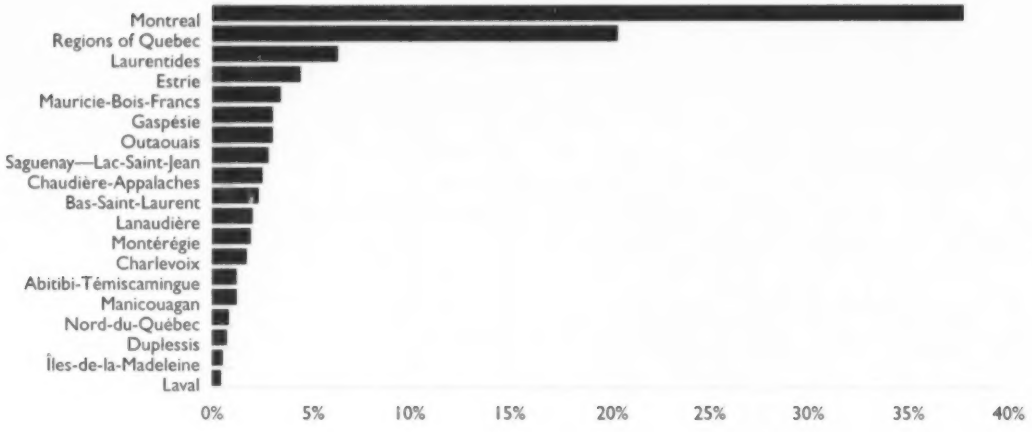
* Preliminary data.
Source: Tourisme Québec.

Foreign tourists focus on Montreal and Quebec City, whereas Quebecers visit the regions more.

Tourist spending is concentrated primarily in two regions: Montreal and Quebec City. Foreign tourists mostly stay in Montreal, which is a destination known around the world. On the other hand, Quebec tourists, who comprise the majority of tourists in Quebec, visit the regions more. Whereas in Montreal, Quebecers make up about 28% of tourists, this proportion climbs to more than 95% for Nord-du-Québec. Since Montreal is the international gateway, the goal should be to reinforce its complementary links with the regions. Similarly, the focus should be on developing synergies among neighbouring regions so as to offer a complementary, integrated tourism supply.

51- Distribution of tourist spending by Quebec region

1999



Source: Tourisme Québec.

Tourism: an important lever for development and diversification of regional economies.

Tourism development is a counterweight to rural and remote regions' economic dependence on natural resources. Certain assets, such as natural attractions, a pleasant climate or a less stressful pace of life, help to attract visitors. In addition, the establishment of attractions and holding of special events outstanding for their authenticity and originality help bring tourists to regions which at first glance are without interest.

Distance is, however, a major hurdle for regions far from major urban centres. The most developed tourist areas are Montreal, Quebec City, the Estrie, the Laurentides and Charlevoix. These areas have the benefit of large population pools which use the tourism services nearby, on a regular basis and for short periods, such as weekends. Whereas most of the tourist regions are at the structuring and consolidation stage, Abitibi-Témiscamingue, Manicouagan and Nouveau-Quebec / James Bay are at the first stage of penetration and positioning.[91]

The challenge: tourism year-round and not just at peak periods.

The challenge facing Quebec's tourism industry is to attract visitors throughout the year, and to get them to stay longer and thus spend more. The main obstacle to lasting economic development of tourism in Quebec is seasonality, since summer remains the principal tourist season. This presents difficulties for recruiting and retaining manpower and makes tourist enterprises' financial situation fragile. In tourism supply, investment involves a relatively high risk, and that affects this industry's competitiveness. Also, farther the tourist regions are from major urban centres, the greater the seasonality of tourism.[40] A supply of tourism products not affected by the climate, such as culture and special events, along with business tourism and conventions, is one potential path for extending the tourist season.

According to the World Tourism Organization, Canada ranked ninth in the world as a tourist destination in 2000. With some 16% of the international tourists who come to Canada, the province of Quebec placed third, after Ontario (42%) and British Columbia (23%). The rapid development of tourism in the world points to attractive growth potential for Quebec. In a context of intensifying competition and an increase in demand and client requirements, Quebec tourist products will have to be more refined, and their level of quality will have to be raised.

Strategic watch and sustained marketing efforts will be necessary to maintain the long-term development of the tourism sector in Quebec.

Comprehension and innovation are important factors within the tourism industry. It is essential to know the clientele in order to cater adequately to their expectations. People feel like learning, being active and enjoying new, authentic experiences. They are travelling more and becoming more demanding. It is crucial to develop the supply adequately in order to maintain and increase market share. Development of additional infrastructure, such as the highway system, accommodation and parking has to take place in conjunction with the development of tourism products. At the same time, souvenir boutiques and stores have to be in a position to accommodate tourists, shopping being an activity in which tourists amply indulge.

Sustained marketing efforts are essential in order to increase demand. Knowledge of client niches leads to better targeting of tourists according to their needs. Tourism stakeholders have to maximize the visibility of original products and establish partnerships in promotional activities, such as tours. Many stakeholders and tourist regions are aiming at the international market, whereas the supply of tourism products has yet to be developed and the level of reception to be perfected (e.g. service in English); finally, the product has to achieve international calibre.[41]

A number of trends are visible in tourism demand, such as the draw of nature (ecotourism), physical and family activities (bicycle paths), educational entertainment (theme-based performances), distinctive experiences (Aboriginal tourism), sailing (cruises) and adventure tourism (whale-watching from sea kayaks). These trends tie in with a concept of sustainable tourism, that is, tourism development which minimizes negative impact and maximizes positive effects on the socio-cultural and ecological environment. Tourism stakeholders will have to move in this direction by ensuring, for instance, balanced management of natural resources and landscape protection, through the judicious inclusion of sports and recreational activities.

CONCLUSIONS

1. Together with Ontario, Quebec makes up Canada's economic heartland. Despite an honest economic performance since the late 1960s, the Quebec economy grew less quickly than Ontario's, and had to contend with a less dynamic labour market and higher unemployment levels.

2. On the other hand, since the late 1980s, Quebec's economic performance has strengthened. The economic structure diversified further, external trade posted strong growth and unemployment declined markedly. However, taxpayers gained little from this sound performance, as income grew more slowly than the economy. Moreover, economic growth occurs primarily in the major urban regions. The future of the remote regions, particularly those that depend on natural resources, is likely to be difficult.

3. In demographic terms, the situation gives cause for concern. The population growth rate is very low, with the result that Quebec's weight in the Canadian federation is constantly declining. The situation is especially serious for the remote regions and rural regions whose young people are leaving for the more urban regions.

4. In an increasingly knowledge-oriented globalized economy, continuous innovation becomes essential for maintaining the competitiveness of Quebec's enterprises and regions. In this regard, Quebec has several assets, including that of best R&D performance of any Canadian province. One remaining problem is that innovation still remains too tied to large corporations and major urban regions. The regions and small enterprises also have to acquire innovation strategies and enhance their productivity if they wish to be in a position to sustain international competition.

5. In the years to come, the labour market will be favourable to job seekers. However, the available jobs will require a higher level of training and skill. People with low skills will have increasing difficulty landing jobs.

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Endnotes

1 The term "remote region" is meant to define a region located far from markets or from a major urban centre. These regions are often dependent on development of natural resources.

2 Autonomous revenues include personal income tax, corporate tax, the proceeds of consumption taxes, revenues or dividends from government corporations and consolidated agencies and payments to the Health Services Fund, but exclude transfer payments from the federal government.

3 David K. Foot, *Boom, Bust and Echo*. According to Foot, demographics easily explains three quarters of economic phenomena.

4 Fertility and death rates, immigration, emigration and, in the case of a province, the interprovincial migration rate are all factors that influence demographics.

5 Expressing GDP in terms of constant dollars makes it possible to measure real growth by removing the effect of inflation.

6 Bureau of Economic Analysis, United States Government.

7 Assuming that Quebec's share in the Canadian economy was the same in 2001 as it was in 1981, at 24%.

8 Bureau of Economic Analysis, United States Government.

9 Personal income consists of disposable income plus government transfer payments (Employment Insurance, Old Age Security, Old Age Pension, social assistance).

10 The result among other things of declining demand in several regions, the downturn in technology stocks and the revelation of questionable accounting practices affecting several major corporations in the United States, as well as in Asia.

11 The participation rate is the total labour force as a percentage of the entire population aged 15 and over, while the labour force comprises the civilian population aged 15 and over (excluding inmates of institutions) who are employed or unemployed.

12 Some will argue that this forecast is well below the real situation and that Quebec is capable of doing much better, as shown by the excellent job creation performance in 2002. Forecasts are always risky, and sometimes involve a high degree of error. But it must be noted that employment growth in 2002 was focussed primarily in Montreal and Quebec City and largely stemmed from a rapidly growing real estate market. Many doubt the real estate market can hold this pace in the years to come.

13 The G7 countries are Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.

14 In view of the importance of the information and telecommunications technology sector in terms of R&D spending in Canada and the difficulties experienced in that sector since 2001, future R&D spending in Canada is likely to be pushed substantially downward.

15 Including Bengt-Åke Lundvall, pioneer of the *national innovation system* concept, who examined the pressures exerted on Danish universities to play a more active role in the knowledge society. *The University in the Learning Economy*, Danish Research Unit for Industrial Dynamics (DRUID) Working Paper No. 02-06.

16 *L'état acteur de l'innovation (Government, an Actor in Innovation)*, Conseil de la science et de la technologie, 1999, p. 26.

17 Statistics Canada, "Measuring the attractiveness of R&D tax incentives", *Innovation analysis bulletin*, Vol. 2, No. 2, May 2000, p. 10.

18 Réjean Landry, Nabil Amara and Moktar Lamari, "Social Capital, Innovation and Public Policy", *ISUMA*, Vol. 2, No. 1, Spring 2001.

19 Value added is the difference between the final value of a product and the cost of the necessary production factors or inputs.

20 Since Statistics Canada has altered the calculation methodology, direct comparisons between the two periods 1992-1998 and 1997-2001 should be made with caution.

21 *Small Business Quarterly*, Industry Canada, March 2002.

22 Canada Economic Development compilation, according to the definition of the manufacturing sector used by Statistics Canada in the *Rural and small town Canada analysis bulletin*, April 2001, and data on SMEs taken from *Les PME au Québec - État de la situation, édition 1999*, ministère de l'Industrie et du Commerce du Québec and the Institut de la statistique du Québec.

23 The Institute's research was sponsored by Canada Economic Development's Observatory and brought together 10 or so researchers. The main observations are presented in a summary report entitled *Globalization, knowledge economy and competitiveness: a systhesis of trends and strategic issues for Quebec SMEs*, Réal Jacob (HEC) and Patrice Ouellet (Canada Economic Development), May 2001.

24 Nathalie Vallerand, "La formation pour soutenir de meilleures pratiques d'affaires", *Les Affaires*, October 2002.

25 According to a recent study of Quebec manufacturers and exporters, Quebec SMEs are slower at adopting advanced practices and technology and invest less in machinery. This largely explains the fact that Quebec's productivity lags behind Ontario and the United States.

26 These include the groundfish crisis, which has been ongoing since the early 1990s, a series of closures of mines or related enterprises in Abitibi and the Gaspé, as well as the anticipated exhaustion of the forest and mining resources. Compounding these problems in 2001 was the lumber trade dispute, which threatens the survival of several local communities. In this regard, see Chapter 5 entitled *Important sectors for the regions: Forest sector.*

27 Abitibi-Témiscamingue, Saguenay—Lac-Saint-Jean, Côte-Nord, Gaspésie—Îles-de-la-Madeleine, Bas-Saint-Laurent and Nord-du-Québec are Quebec's six outlying or peripheral regions.

28 Mario Polèse and Richard Shearmur with the assistance of Pierre-Marcel Desjardins and Marc Johnson, *The Periphery in the Knowledge Economy: The Spatial Dynamics of the Canadian Economy and the Future of Non-metropolitan Regions in Quebec and the Atlantic Provinces*, INRS and CIRRD, 2002.

29 Richard Shearmur with the assistance of Mario Polèse, *Economic Development in Outlying Canadian Regions: Major Statistical Trends* (forthcoming), INRS-UCS, Montreal. The results presented in this study cover the whole of Canada. In that context, census areas that straddle boundaries were allocated in total to the province in which the larger portion of the area is located. So in this study, the Ottawa-Hull (now Ottawa-Gatineau) CMA is considered to fall entirely within Ontario. This means the proportion of census metropolitan areas presented here is slightly underestimated.

30 For instance, marine technology and peat products in Bas-Saint-Laurent, aluminum in the Saguenay and forestry in several regions, as well as harnessing of as yet undeveloped potential such as biological agriculture in the Gaspé and Témiscamingue.

31 Mario Polèse and Richard Shearmur, with the assistance of Pierre-Marcel Desjardins and Marc Johnson, *The Periphery in the Knowledge Economy: The Spatial Dynamics of the Canadian Economy and the Future of Non-metropolitan Regions in Quebec and the Atlantic Provinces*, INRS and CIRRD, 2002.

32 E&B DATA.

33 These statistics are taken from Statistics Canada's latest survey on biotechnology. See: Statistics Canada, *Practices and activities of Canadian biotechnology firms: results from the Biotechnology Use and Development Survey* - 1999, August 2001 (catalogue # 88F0006XIB2001011).

34 *Entreprendre* magazine, Vol. 15, No. 2, June-July 2002, p. 40.

35 Canadian Council of Forest Ministers, *Compendium of Canadian Forestry Statistics*, and ministère des Ressources naturelles du Québec, *Ressources et industries forestières - portrait statistique*, 1999 edition.

36 Members of the G7 (note 13) plus Russia.

37 Employment associated with tourism is a measurement of employment stemming from tourism activities within the tourism and non-tourism sectors. It is based on an estimate of jobs rather than on full-time equivalents.

38 The most common definition of tourism is that adopted by the World Tourism Organization and the United Nations Statistics Commission, and used by Canada: " Tourism comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes." This broad definition requires clarification and includes exceptions. Both personal and business trips are included in it. Also, the notion of "outside their usual environment" has been established in Canada as the area beyond 80 kilometres from home. In addition, several factors are removed from the estimates, such as commuting, travel for study, etc.

39 Desjardins Marketing Stratégique, *Comment mieux investir dans le secteur du tourisme*, March 1999.

40 Université du Québec à Montréal, Chair in Tourism, *La saisonnalité : analyse et stratégies pour l'industrie touristique*, April 1998.

41 Desjardins Marketing Stratégique, *Comment mieux investir dans le secteur du tourisme*, March 1999.

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